Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-101

B. C. A. (Semester - I) Examination - 2010

BUSINESS COMMUNICATION

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Draw figures wherever necessary.

Q.1) Define Communication. Explain Cycle of Communication in detail. **[15]**

OR

Q.1) Explain types of Communication along with their merits and demerits. **[15]**

Q.2) What is a Sales Letter ? As a Sales Manager draft a sales letter for promoting Sale of Laptops. **[15]**

OR

Q.2) Draft an application letter for the post of Lecturer in Computers in an Educational Institute along with resume. **[15]**

Q.3) Explain the following : SMS, Telephone Answering Machine, Word Processor and Voice Mail in detail. **[15]**

OR

Q.3) What is Listening ? How will you improve your Listening Skills ? **[15]**

Q.4) What is a Meeting ? Explain types and importance of Meetings. **[15]**

OR

Q.4) Define Group Discussion. Describe Do's and Don'ts of Group Discussion. **[15]**

Q.5) Write short notes : **(Any Four)** **[20]**

(a) Press Conference

(b) Complaint and Follow-up Letter

(c) Non-verbal Communication

(d) Speaking Skills

(e) Kinds of Business Letters

(f) Telex

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-102

B. C. A. (Semester - I) Examination - 2010

PRINCIPLES OF MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) All questions carry equal marks.

Q.1) What is 'Management' ? Explain nature and scope of Management.

OR

Q.1) Describe contribution of F.W. Taylor to Management.

Q.2) What is Planning ? State its nature and process.

OR

Q.2) Write notes :

(a) Difficulties in Delegation of Authority

(b) Importance of Organisational Communication

Q.3) Critically examine Herzberg's Two Factor Theory of Motivation.

OR

Q.3) What are the requirements of an Effective Control System ?

Q.4) What is Strategy ? Explain various types of Strategies.

OR

Q.4) Write notes :

(a) Levels of Decision

(b) Management of Change

Q.5) Write short notes : **(Any Four)**

(a) Environment Friendly Management

(b) Nature of Direction

(c) Functions of a Leader

(d) Total Quality Management

(e) Importance of Co-ordination

(f) Staffing

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

[3773]-103

B. C. A. (Semester - I) Examination - 2010

PRINCIPLES OF PROGRAMMING AND ALGORITHM

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Neat diagram must be drawn wherever necessary.

(3) Use Ansi C method.

Q.1) Answer the following : **[2x6=12]**

(a) Define a Flowchart.

(b) List different types of Constants.

(c) What is the use of getchar function ?

(d) List all bitwise operators in C.

(e) What is Call by Value ?

(f) What is Recursion ?

Q.2) Answer the following : **(Any Four)** **[16]**

(a) Explain basic structure of 'C' program.

(b) What is a Variable ? State rules for naming a variable.

(c) Explain Loop (Iterative) statements in 'C'.

(d) What is Algorithm ? Explain characteristics of Algorithm.

(e) Explain two preprocessor directives with example.

Q.3) Attempt the following : **(Any Four)** **[16]**

(a) Write a 'C' program to check whether the given number is prime or not.

(b) Write a 'C' program to generate the following pattern for n lines.

1

2 3

4 5 6

(c) Write a 'C' program to calculate sum of digits of a given number.

(d) Write a 'C' program to accept character and display its ASCII Value and its next and previous character.

(e) Write a 'C' program to calculate sum of Fibonacci Series. (Take input from user)

Q.4) Attempt the following : **(Any Four)** **[16]**

(a)
```
main( )
{
    printf("hello");
    main( )
    {
        printf("hello");
    }
}
```
(Find output.)

(b)
```
main( )
{
    int x, y, z;
    x = y = z = –1;
z = ++x || ++ y && ++z;
printf("x = %d y = %d z = %d\n", x, y, z);
}
```
(Find output.)

(c)
```
main( )
{
    int x = 1;
switch(x)
    {
    case 0 : x = 1;
    case 1 : x = 2;
    case 2 : x = 4;
    default : printf ("Default");
    }
    printf("%d", x);
}
```
(Find output.)

(d) Write an algorithm to convert temperature in Celcius to Fahrenheit.

(e) Draw a flowchart to find factorial of a number.

Q.5) (A) Attempt the following : **(Any Two)** **[10]**

(a) What is the difference between Automatic and Static Storage Class ?

(b) What is difference between Actual Parameters and Formal Parameters ?

(c) What is Function ? What are the advantages of Function ?

(B) Attempt the following : **(Any Two)** **[10]**

(a) Write a ‘C’ program to read single character which is an alphabet, convert it into opposite case.

(b) Write a ‘C’ program to find reverse of a given number using function.

(c) Write a ‘C’ program to check whether the given number is armstrong or not.

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-104

B. C. A. (Semester - I) Examination - 2010

COMPUTER FUNDAMENTALS AND OFFICE AUTOMATION

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Neat diagrams must be drawn wherever necessary.

Q.1) Attempt **any three** of the following : **[15]**

(a) What is Digital Computer ? Explain characteristics of Computer.

(b) Explain features of MS-Excel.

(c) Which files make-up the D.O.S. Operating System ? Explain.

(d) Differenciate between DOS and Linux.

Q.2) Attempt **any three** of the following : **[15]**

(a) Explain advantages and disadvantages of Flowcharts.

(b) Define Algorithm. State any four characteristics of an Algorithm.

(c) Draw a flowchart of print all odd numbers between 1 and 100.

(d) Write an Algorithm to find factorial of a number.

Q.3) Attempt **any three** of the following : **[15]**

(a) Explain in detail Vi Editor in Linux O.S.

(b) Differenciate between Impact and Non-impact Printer.

(c) What is Batch File ? State its usefulness.

(d) Write a note on Window Utilities.

Q.4) Attempt **any three** of the following : **[15]**

(a) Perform the following :

(i) Multiply $(110)_2$ by $(101)_2$

(ii) $(6EA)_{16} = (?)_2$

(iii) $(127)_{16} = (?)_{10}$

(iv) $(9F2)_{16} = (?)_8$

(v) $(15)_{10} = (?)_8$

(b) Explain different charts in Microsoft Excel.

(c) Explain Booting Process in detail.

(d) Explain features of Linux O.S.

Q.5) Attempt **any four** of the following : **[20]**

(a) Differenciate between RAM and ROM.

(b) Explain the following terms :

(i) GUI

(ii) Desktop

(iii) Menus

(iv) Task Bar

(v) Tool Bar

(c) Explain Plotter in detail.

(d) Explain elements of MS-Word in detail.

(e) Write a batch file that performs the following tasks :

(i) Display content of file Backup.txt.

(ii) Rename fy.txt file as fysemI.txt.

(iii) Display message and wait for user to press any key.

(iv) Copy content of hello.txt file into by.txt.

(v) Delete file DDM.txt.

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

[3773]-105

B. C. A. (Semester - I) Examination - 2010

BUSINESS ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Use of calculator is allowed.

Q.1) (A) Fill in the blanks : **[05]**

(a) _____ is prepared by the purchaser and issued to the seller.

(b) Adjusting entries are passed in _____.

(c) Capital is the excess of _____ over liabilities.

(d) _____ discount is a motivation for making prompt payment.

(e) Goodwill is a _____ Asset.

(B) Write word, term or phrase which can substitute each of the following : **[05]**

(a) Transferring a journal entry to the appropriate account in the ledger.

(b) The benefit of advertisement expenditure on TV that would last for a longer period of time.

(c) Irrecoverable Debts from Sundry Debtors.

(d) A principle referred to the element of personal judgement which should be reduced to the minimum.

(e) A cheque issued to safeguard interest of the drawer and the drawee.

(C) State whether the following statements are **true** or **false** : **[05]**

(a) Loan taken for a long period is a current liability.

(b) Debit means an increase in liability and decrease in an asset.

(c) Excess of income over expenditure is called profit.

(d) A voucher is a document that supports a payment made by the business.

(e) Bank Reconciliation Statement is prepared by the trader.

(D) Classify the following accounts into Personal A/c., Real A/c. and Nominal A/c. : **[05]**

(a) Loose Tools A/c.

(b) Outstanding Rent A/c.

(c) Capital A/c.

(d) Brokerage A/c.

(e) Patents A/c.

Q.2) What is 'Computerised Accounting System' ? Explain salient features and significance of Computerised Accounting System. **[12]**

OR

Q.2) Write short notes : **(Any Three)** **[12]**

(a) Objectives of Financial Accounting

(b) Revenue Recognition Principle

(c) Going Concern Concept

(d) Benefits of Accounting Standards

(e) Generating Accounting Reports

Q.3) Journalise the following transactions in the books of Ajay and Co., Aurangabad for Janurary, 2010 : **[16]**

1st Ajay started business with cash Rs. 10,000 and Machinery worth Rs. 20,000.

6th Bought Goods from Abhay Rs. 5,000 @ 12% Trade Discount on Credit.

13th Purchased Machinery worth Rs. 3,700 from Patel Bros. on credit and paid Rs. 300 for installation of the same.

20th Deposited Rs. 2,000 into Current Account with Dena Bank.

22nd Invoiced Goods to Amit Rs. 2,000 @ 10% Cash Discount and 20% Trade Discount for Cash.

24th Paid Rs. 1,200 for Life Insurance Premium.

28th Received Rs. 1,800 for Interest on Investment.

31st Paid Rs. 4,250 to Abhay in full settlement of his account.

Q.4) (A) Enter the following transactions in the Cash Book with Cash, Bank and Discount Columns of Brijesh Enterprises, Badlapur and balance the same for December, 2009 : **[08]**

1st Cash in Hand Rs. 5,000 and Cash at Bank Rs. 10,000.

6th Bought Goods from Bindesh Rs. 1,000 @ 10% Trade Discount and paid by cheque.

9th Paid to Barua Enterprises Rs. 250 for Purchase of Tools.

12th Received from Barve Rs. 1,250 by cheque in full settlement of Rs. 1,300.

16th Purchased Office Stationery from Bora Bros. Rs. 340 for Cash.

18th Banked the Cheque received from Barve.

20th Paid by Cheque Rs. 2,500 as Salary to Shop Supervisor Mr. Binny.

24th Barve's cheque returned dishonoured.

27th Invoiced Goods to Burma Rs. 2,000 @ 40% Cash Discount.

29th Paid Rs. 850 to Bagde in part payment of his account for Rs. 900 for purchases of goods during last month.

31st Withdraw Rs. 1,500 from Bank for office purpose.

(B) Chandan Bros., Chembur purchased machinery for Rs. 76,000 on 1-1-2008 and installed it on the same date by paying Rs. 4,000. On 30-6-2008 they purchased additional machinery for Rs. 19,000 and paid Rs. 1,000 for its errection. On 1-1-2009 they purchased a new machinery for Rs. 10,000. Financial year of the company ends on 31st December. The company provides depreciation @ 25% p.a. as per Straight Line Method.

Prepare Machinery Account and Depreciation Account for the first two years. **[08]**

Q.5) The following ledger balances were extracted from the books of Dinesh Deokar, Delhi as on 31st March, 2009. Prepare a Trading and Profit and Loss Account for the year ended 31st March, 2009 and a Balance Sheet as on that date after taking into account the adjustments given below : **[16]**

Trial Balance as on 31st March, 2009

Debit Balances	Rs.	Credit Balances	Rs.
Cash in Hand	6,000	Bank Overdraft	18,000
Sundry Debtors	22,500	Outstandaring Salary	2,000
Bills Receivable	9,000	Sundry Creditors	15,000
Stock on 1-4-2008	16,700	Sales	65,800
Sales Returns	800	Purchases Returns	2,200
Loose Tools	1,000	Bills Payable	8,200
Salaries	11,000	Discount Received	2,300
Purchases	37,200	D's Capital	56,500
Printing and Stationery	3,200		
Commission	1,000		
Petty Cash	800		
Wages	2,000		
Machinery	41,000		
Machinery Repairs	800		
Carriage on Purchases	1,500		
Insurance	1,000		
D's Drawings	2,500		
Octroi Duty	800		
Furniture	8,000		
Rent and Taxes	3,200		
	1,70,000		**1,70,000**

Adjustments :

(1) Stock of Goods on 31-3-2009 valued at Rs. 21,000 Cost Price and Rs. 22,500 Market Price.

(2) Salary due but not paid were Rs. 1,000 whereas printing bill outstanding were Rs. 800.

(3) Insurance of Rs. 600 was for the next year.

(4) Rs. 500 are to be provided for bad debts on Sundry Debtors.

(5) Furniture is to be depreciated at 5% p.a.

Total No. of Questions : 6] **[Total No. of Printed Pages : 3**

[3773]-13

B. C. A. (Semester - I) Examination - 2010

NUMERICAL METHODS

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Solve **any four** questions.*

(2) Figures to the right indicate full marks.

(3) Use of electronic calculator is allowed.

Q.1) (A) Define Octal Codes. Convert $(125)_8$ Octal Number in its binary equivalent. **[05]**

(B) Convert decimal 100 in its binary equivalent. **[05]**

(C) Differentiate between Absolute and Relative Errors. **[05]**

(D) Compute $\frac{0.3215}{3.215}$ up to 3 decimal places. Find its Absolute Error. **[05]**

Q.2) (A) Explain formula of Regula Falsi Method to find roots of Non-linear Equation f(x) = 0. **[06]**

(B) Fit second degree polynomial to the following data : **[07]**

x	0	1	2	3	4
f(x)	–10	–6	0	8	18

(C) Solve the following system of linear equations : **[07]**

$x + y - z = -1$

$2x + z = 2$

$-x + 2y = 2$

Q.3) (A) Prepare backward difference table of the equation

$f(x) = x^3 - 3x^2 + 5x - 10$ for the values of

$x = -2, -1, 0, 1, 2.$

Hence find $\nabla f(0)$. **[06]**

(B) Find cube root of 10 by Newton Raphson Method corrected up to 3 decimal places. **[07]**

(C) Using the following table, find form of the function : **[07]**

x	0	1	2	3	4
f(x)	3	6	11	18	27

Q.4) (A) Explain any three methods to find integration of the data type function. **[06]**

(B) Using Simpson's $^1/_3$ rule, evaluate : **[07]**

$$\int_0^1 \frac{x^3}{1 + x^3}\, dx \quad \text{take } h = 0.1$$

(C) Find area of cross section of a river, 30 meter wide, depth y (in meter) at a distance x from one bank is given in table : **[07]**

x	0	10	20	30	40	50	60	70	80
y	0	4	7	9	12	15	14	3	3

Q.5) (A) Explain any two methods with formulae to find solution of Differential Equation. **[06]**

(B) Given that $\frac{dy}{dx} = x + y$, $y(1) = 0$ obtain Taylor's Series for f(x) with $h = 0.1$, hence evaluate $y(1.1)$. **[07]**

(C) Given that $\frac{dy}{dx} = x^2 + y$, $y(0) = 1$ determine $y(0.02)$ and $y(0.04)$ using Eulers Method. **[07]**

Q.6) (A) Explain Gauss Elimination Method to find solution of system of linear equation. **[06]**

(B) Solve the following system by Gauss Seidal Iteration Method. Perform 2 iterations. **[07]**

$10x + y + z = 12$

$2x + 10y + z = 13$

$x + y + 5z = 7$

(C) If $u = 3xy^2z - 5y$, find percentage error in u at $x = 1$, $y = 2$, $z = 1$, if $\Delta x = \Delta y = \Delta z = 0.001$. **[07]**

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-14

B. C. A. (Semester - I) Examination - 2010

COMPUTER FUNDAMENTALS

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Draw neat diagram wherever necessary.

Q.1) Attempt **any three** of the following : **[15]**

(a) What is Computer ? Describe Classification of Computers.

(b) Explain different types of Memories.

(c) Explain different types of Printers.

(d) Perform the following :

(i) $(110011)_2 = (?)_{10}$

(ii) $(576)_8 = (?)_2$

(iii) $(CAD)_{16} = (?)_2$

(iv) $(246)_8 = (?)_{16}$

(v) Multiply $(1111)_2$ by $(1111)_2$

Q.2) Attempt **any three** of the following : **[15]**

(a) Explain 80286 in detail.

(b) What is Flip-Flop ? Explain J-K Flip-Flop.

(c) Develop an algorithm and draw a flowchart to find sum of the digits [e.g. 567 = 18].

(d) Explain concept of Virtual Memory.

Q.3) Attempt **any three** of the following : **[15]**

(a) Explain features of MS-Windows 95.

(b) Explain Round - Robin Scheduling.

(c) Explain different File Handling Functions.

(d) What do you mean by Virus ? Explain different types of Viruses.

Q.4) Attempt **any three** of the following : **[15]**

(a) Draw and explain Co-axial Cable.

(b) Explain in detail IEEE Standard 802.3 and Ethrnet.

(c) Explain Direct Memory Access (DMA).

(d) Explain Hashed File Techniques with example.

Q.5) Distinguish between : **(Any Four)** **[20]**

(a) LAN and WAN

(b) Compiler and Interpreter

(c) Data and Information

(d) Unix and DOS

(e) Primary Storage and Secondary Storage

(f) Assembly Language and High Level Language

Total No. of Questions : 8] **[Total No. of Printed Pages : 1**

[3773]-201

B. C. A. (Semester - II) Examination - 2010

ORGANISATIONAL BEHAVIOUR

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Answer **any five** questions.*

(2) All questions carry equal marks.

Q.1) Explain different Models of Organisational Behaviour. **[16]**

Q.2) Critically analyse Maslow's Need Hierarchy Theory. **[16]**

Q.3) Explain the term Personality. Give any two Theories of Personality in detail. **[16]**

Q.4) What are the strategies to overcome Individual Vs. Organisational Stress ? **[16]**

Q.5) Define Leadership and explain its various styles used in the Organisation. **[16]**

Q.6) Explain Conflict Management and its strategy to overcome Conflicts. **[16]**

Q.7) Define Personality and explain various determinants of Personality. **[16]**

Q.8) Write short notes : **(Any Two)** **[8x2=-16]**

(a) Emerging aspects of Organisational Behaviour

(b) Nature and Importance of Motivation

(c) Traits of Effective Leader

Total No. of Questions : 5] [Total No. of Printed Pages : 4

[3773]-202

B. C. A. (Semester - II) Examination - 2010

ELEMENTS OF STATISTICS

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) All questions carry equal marks.

(3) Figures to the right indicate full marks.

(4) Use of statistical table and calculator is allowed.

(5) Symbols and abbreviations have their usual meanings.

Q.1) Attempt **any four** of the following : **[4x4=16]**

(a) Describe advantages of Sampling over Census.

(b) What are the requirements of a good measure of Central Tendency ?

(c) Explain construction of Mean and Range Chart in Statistical Quality Control.

(d) Define :

(i) Sample Space

(ii) Union of Two Events

(e) The mean weight of all 150 students in a certain class is 60 kgs. and that of girls is 55 kgs. Find number of boys and girls in the class.

(f) One kg of grade - I sugar of price 30 Rs./kg and one kg of grade - II suger of price 20 Rs./kg are mixed together. Find cost of mixture per kg.

Q.2) Attempt **any four** of the following : **[4x4=16]**

(a) Following is an incomplete distribution having modal value as 44 :

Marks	0-20	20-40	40-60	60-80	80-100
No. of Students	5	18	?	12	5

Find missing frequency.

(b) Compute values of :

(i) ${}^{7}P_{2}$ (ii) ${}^{10}C_{2}$ (iii) ${}^{8}C_{4} \cdot {}^{5}C_{2}$

(c) An urn contains 6 white and 8 red balls. Two balls are drawn at random. Find probability that :

(i) both balls are of red colour.

(ii) both balls are of the same colour.

(d) Two samples of sizes 40 and 50 have the same mean but different standard deviations, 19 and 8 respectively. Find standard deviation of combined group.

(e) How many four digit numbers can be formed by using digits 1, 3, 5, 6, 7, 8 and 9 (no digit should be repeated) ? How many of these will be greater than 3,000 ?

(f) For 10 samples each of size 5, we have

$\sum \overline{X} = 162, \sum R = 80.$

Compute control limits for $\overline{X}$ and R charts.

(For n = 5, $A_2 = 0.5777$, $D_3 = 0$, $D_4 = 2.115$)

Q.3) Attempt **any four** of the following : **[4x4=16]**

(a) Find Median for the following data :

Class	0-100	100-200	200-300	300-400	400-500	500-600	600-700
Frequency	9	15	18	21	18	14	5

(b) The number of lectures attended by students in a class are distributed as follows :

No. of Lectures Attended	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No. of Students	6	8	16	28	32	25	5

Find Standard Deviation.

(c) If $P(A) = 0.6$, $P(B) = 0.4$, $P(A \cap B) = 0.2$,

compute :

(i) $P(A \cup B)$ (ii) $P(A')$ (iii) $P(A' \cap B)$

(d) Explain the following terms with one illustration of each :

(i) Mutually Exclusive Events

(ii) Independence of Two Events

(e) If two dices are rolled, find probability that the sum of the integers on the uppermost faces is almost 4.

(f) Describe scope of statistics in the field of Social Sciences.

Q.4) Attempt **any four** of the following : **[4x4=16]**

(a) A family of 4 brothers and 3 sisters is to be arranged for a photograh in one row. In how many ways can they be seated, if no two sisters sit together ?

(b) Let A and B be two independent events defined on a sample space Ω. If $P(A) = 0.6$, $P(B) = K$ and $P(A \cup B) = 0.8$, find value of K.

(c) Find geometric mean of the following set of observations :

2, 12, 40, 52, 35

(d) The average sales for the first 11 months of a year by a salesman was Rs. 12,000. Due to illness during last month the average sale for the year comes down to Rs. 11,380. What was his sale in the last month ?

(e) Two workers on the same job show the following results over a long period of time :

	Worker A	**Worker B**
Mean Time of Completing the Job (min.)	30	25
Variance (min.^{2})	36	16

Which worker appears to be more consistent in the time required to complete the job ?

(f) Let the sample space Ω = {1, 2, 3, ..., 10}

A = {2, 4, 6, 8, 10}, B = {6, 7, 8, 10}

List elements of the sets :

(i) $A \cup B$

(ii) $A \cap B$

(iii) A'

(iv) $A' \cap B$

Q.5) Attempt **any two** of the following : **[2x8=16]**

(a) Construct np-chart for the following data and state your conclusions :

Sample No. (each of size 100)	1	2	3	4	5	6	7	8	9	10
No. of Defectives	10	14	7	7	9	10	8	12	9	14

(b) Given below are share prices of two companies A and B for 10 trading days. Which company's share prices are more stable ? Justify.

Company A	50	52	58	55	53	60	48	47	57	50
Company B	107	104	102	95	100	105	108	107	111	91

(c) List elements of sample space for the followng experiments :

(i) A coin is tossed 3 times.

(ii) A student attempts an examination till he passes.

(iii) Ten seeds are planted and total number of seeds germinated are recorded.

(iv) Two cards are drawn from a pack of playing cards and colour is noted.

Total No. of Questions : 4] **[Total No. of Printed Pages : 4**

[3773]-203

B. C. A. (Semester - II) Examination - 2010

'C' PROGRAMMING

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Q.1) Answer the following : **(Any Ten)** **[10x2=20]**

(1) Define Array. How is it declared ?

(2) How is a pointer variable declared and initialized ?

(3) What is the significance of type def keyword ?

(4) Which are the arithmetic operations performed on Pointers ?

(5) Give syntax and use of fopen( ).

(6) What is the Prototype and use of strcmp( ) ?

(7) List different categories of preprocessor directive.

(8) What is the significance of argv[ ] ?

(9) Is it possible to omit keyword struct while declaring structure variable ? Justify.

(10) What is Masking ? How can masking be done ?

(11) What is a Stream ? List atleast two predefined streams.

(12) How do we declare pointer to constant object ?

Q.2) Answer the following : **(Any Four)** **[5x4=20]**

(a) Illustrate difference between Structure and Union with an example.

(b) What is Dynamic Memory Allocation ? Explain functions used to allocate and deallocate memory dynamically.

(c) Write syntax and usage of following functions :

(i) fseek( )

(ii) fread( )

(iii) fwrite( )

(iv) fprintf( )

(v) fscanf( )

(d) How can array of structure be declared ? Can it be initialised ? Give an example.

(e) Write a note on Compiler Control Directives.

Q.3) Attempt the following : **(Any Four)** **[5x4=20]**

(a) Write a 'C' program to convert decimal number to binary.

(b) Write a 'C' program to accept itemname, quantity, rate and find total cost by using structure.

(c) Write a program that will print all rotations of string typed in it.

Eg. space : space, paces, acesp, cespa, espac

(d) Write a 'C' program to copy contents of one file to another using command line argument.

(e) Write a 'C' program to accept $m \times n$ matrix and generate $m + 1 \times n + 1$ matrix such that m^{th} row contains sum of elements of corresponding columns and n^{th} column contains sum of elements of corresponding rows.

Q.4) Trace output and justify : **(Any Four)** **[5x4=20]**

(a)
```
main( )
{
    int arr[ ] = {0, 1, 2, 3, 4};
    int * ptr, i;
  for (ptr = arr + 4; ptr > = arr; ptr – –)
    printf (“%d”, arr[ptr – arr]);
}
```

(b)
```
main( )
{
  static char s[ ] = “C is a philosophy of life”;
  char t [40];
  char *ss, *tt;
  ss = s;
  tt = t;
  while (*ss)
    *tt++ = *ss++;
  *tt = ‘\0’;
  printf(“%s”, t);
}
```

(c)
```
main( )
{
  static int a [ ] = {2, 4, 6, 8, 10};
    int i;
  for (i = 0; i < = 4; i++)
  {
    * (a + i) = a[i] + i[a];
    printf(“%d”, * (i + a));
  }
}
```

(d)
```
main( )
{
   struct  a
   {
      char  ch  [7];
      char  *  str;
   };
   static  struct  a  sl  =  {“Nagpur”,  “Bombay”};
      printf(“%c  %c\n”,  sl.ch[0],  *  sl.str);
      printf(“%s  %s\n”,  sl.ch,  sl.str);
}
```

(e)
```
#define  CUBE  (x)  (x  *  x  *  x)
main( )
{
   int  a,  b;
   b  =  3;
   a  =  CUBE  (b++)  /  b++;
   printf(“a  =  %d  b  =  %d”,  a,  b);
}
```

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

[3773]-204

B. C. A. (Semester - II) Examination - 2010

FILE STRUCTURE AND DATABASE CONCEPTS

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

Q.1) Attempt **any four** : **[4x4=16]**

(a) List types of File Organisation Techniques. Explain any one in detail.

(b) Write a short note on B+ tree.

(c) Enlist various users of DBMS and specify their roles.

(d) What is Aggregation ? Explain with example.

(e) Explain Hierarchical Model with example.

Q.2) Attempt **any four** : **[4x4=16]**

(a) Explain Dense Indexing with suitable example.

(b) Write a short note on ISAM.

(c) What are the limitations of File Processing System ?

(d) State different types of relationships that can exist between entity sets with suitable example.

(e) Explain Normalisation with example.

Q.3) Attempt **any four** : **[4x4=16]**

(a) What do you mean by Physical Files and Logical Files ?

(b) Write short note on Keys.

(c) Explain Project and Union Operation of Relational Algebra with example.

(d) Explain group by clause with example.

(e) Explain Anomalies of Unnormalised Database.

Q.4) Attempt the following : **[16]**

Consider the following entities and their relationship :

Employee (emp_id, emp_name, desg, salary)

Project (proj_id, proj_name)

Employee and Project are related with many to many relationship with a descriptive attribute 'hrs_worked'.

Create a RDB in 3NF and solve the following queries by using SQL : **(Any 5)**

(a) Insert a row in project table.

(b) Display employee details working as 'Project Leader'.

(c) Display no. of employees working on 'JAVA' Project.

(d) Add 'completion_date' column to project table. Use alter command.

(e) Display total number of hours worked by each employee.

(f) Display projects on which 'Mr. Amit S.' has worked.

Q.5) Attempt the following : **[16]**

(a) A car insurance company has a set of customers, each of whom owns one or more cars. Each car has associated with it zero to any number of record accidents.

(i) Identify all entities

(ii) Identify all relations

(iii) Draw E-R diagram

(b) Consider relational database :

Customer (cust_no, cust_name, address, city)

Loan (loan_no, loan_amt, loan_date, cust_no)

Customer and Loan are related with one-many relationship.

Write relational algebraic expression for the following :

(i) List loan details of customer name as ‘Mr. Khurana’.

(ii) Display customers with loan amount greater than 50,000.

(iii) Display customer names who have taken loan on ‘10-Mar-2009’ and city as ‘Pune’.

(iv) List names of customers who do not have loan at the bank.

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

[3773]-205

B. C. A. (Semester - II) Examination - 2010

COST ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Use of calculator is allowed.

Q.1) (A) Indicate whether the following statements are **true** or **false** : **(Any Five)** **[05]**

(a) Costing is the Technique and Process of Ascertaining Cost.

(b) Fixed Cost per unit remains constant.

(c) Job Costing is suitable for special order concerns.

(d) Marginal Costing is a method to ascertain cost.

(e) A budget is presented in financial and or quantitative terms.

(f) Standard Cost, once fixed, cannot be altered.

(B) Fill in the blanks : **(Any Five)** **[05]**

(a) Aggregate of all direct costs is known as _____.

(b) Factory Cost + Administration Overhead = _____.

(c) _____ is the most important document used in the Job Costing System.

(d) _____ loss is charged to costing P and L Account.

(e) In hospital undertaking, the Cost Unit is _____.

(f) In Contract Costing, the Cost Unit is _____.

Q.2) Define 'Cost Accounting'. State advantages and limitations of Cost Accounting. **[15]**

OR

Q.2) Define the term 'Cost'. How would you classify Cost ? Give suitable example. **[15]**

Q.3) Write short notes : **(Any Three)** **[15]**

(a) Advantages of Job Costing

(b) Cost Unit

(c) Features of Process Costing

(d) Margin of Safety

(e) Architect's Certificate

Q.4) The following figures have been extracted from the books of Jay Engineering Ltd. for the year ending 31st March, 2008 :

	Rs.
Direct Materials	80,000
Direct Wages	40,000
Indirect Wages	10,000
Direct Expenses	12,000
Electric Power	1,000
Depreciation of Office Building	1,000
Depreciation of Plant and Machinery	2,000
Director's Fees	2,000
Oil and Waste	200
Lubricants	300
Consumable Stores	1,000
Bad Debts	2,000
Postage and Telegraph	500

	Rs.
Lighting - Factory	1,000
- Office	400
Carriage Outwards	300
Office Printing and Stationery	500
Store Keeper's Wages	1,200
General Selling Expenses	2,000
Travelling Expenses	1,000
Telephone Charges	800
Rent - Factory	2,000
- Office	1,000
Manager's Salary	3,000
General Factory Expenses	500
Sales	2,00,000

From the above figures, calculate :

(a) Prime Cost

(b) Factory Cost

(c) Cost of Production

(d) Total Cost

(e) Profit **[16]**

Q.5) (A) From the following data, calculate P/V Ratio, BEP (Rs.) and Margin of Safety : **[12]**

		Rs.
Sales		80,000
Variable Cost	40,000	
Fixed Cost	24,000	64,000
Profit		16,000

(B) The expenses budgeted for production of 10,000 units in a factory are furnished below :

	Per Unit (Rs.)
Materials	70
Labour	25
Variable Overheads	20
Fixed Overheads (Rs. 1,00,000)	10
Variable Expenses (Direct)	05
Selling Expenses (10% Fixed)	13
Distribution Expenses (20% Fixed)	07
Admn. Expenses (Rs. 50,000)	05
Total Cost	**155**

Prepare a Flexible Budget for 6,000 units and 8,000 units. **[12]**

OR

(B) From the following data, calculate : **[12]**

(a) Material Cost Variance

(b) Material Price Variance

(c) Material Usage Variance

Raw Material	**Standard**	**Actual**
X	40 untis @ Rs. 50 per unit	50 units @ Rs. 50 per unit
Y	60 units @ Rs. 40 per unit	60 units @ Rs. 45 per unit

Total No. of Questions : 8] **[Total No. of Printed Pages : 1**

[3773]-21

B. C. A. (Semester - II) Examination - 2010

ORGANISATIONAL BEHAVIOUR

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Answer **any five** questions.*

(2) All questions carry equal marks.

Q.1) Explain any four models of Organisational Behaviour. **[16]**

Q.2) What is Motivation ? Give process and importance of Motivation. **[16]**

Q.3) What is Stress Management ? Explain strategies to overcome Individual Vs. Organisation Stress. **[16]**

Q.4) Define Leadership. Explain various Styles of Leadership used in the Organisation. **[16]**

Q.5) Explain various Theories of Personality. **[16]**

Q.6) What is Conflict Management ? Explain strategies to resolve Interpersonal Conflict. **[16]**

Q.7) Explain Maslow's Theory of Motivation and also distinguish between Theory X and Theory Y. **[16]**

Q.8) Write short notes : **(Any Two)** **[16]**

(a) Good Manners and Etiquettes

(b) Strategies of Good Health

(c) New Emerging Trends in the Organisation

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3773]-22

B. C. A. (Semester - II) Examination - 2010

PROGRAMMING PRINCIPLES AND ALGORITHM

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **1** is compulsory.*

*(2) Attempt **any four** from the remaining.*

Q.1) (A) What is Flowchart ? Draw a flowchart to swap two values without using third variable. **[10]**

(B) Write a algorithm to check if given number is prime number or not. **[10]**

Q.2) (A) Explain difference between High Level Language and Low Level Language. **[06]**

(B) Write a program to display first 'n' terms of the Fibonacci Series. **[09]**

Q.3) (A) What is Nested Control Structure ? Explain with example. **[06]**

(B) Write a program to find sum of first 'n' terms of the series : **[09]**

$$\frac{1}{2} + \frac{3}{4} + \frac{5}{6} + \frac{7}{8} + \text{.....}$$

Q.4) (A) Explain different operations that can be carried out with sets. **[06]**

(B) Write a program to find L.C.M. of two numbers using function. **[09]**

Q.5) (A) What is Record ? Explain variant records with example. **[06]**

(B) Write a program to display contents of file in reverse order. **[09]**

Q.6) (A) What are user defined Data Types ? Explain any one in detail. **[06]**

(B) Write a record program of Employee which contains Emp_No, Emp_Name, Address, Basic_pay, DA, HRA, ITAX. Calculate Net Salary of 100 Employees
(Net_sal = (Basic_pay + DA + HRA) – ITAX **[09]**

Total No. of Questions : 6] **[Total No. of Printed Pages : 4**

[3773]-23

B. C. A. (Semester - II) Examination - 2010

ELEMENTS OF STATISTICS

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Solve **any four** questions.*

(2) Figures to the right indicate full marks.

(3) Use of scientific calculator is allowed.

Q.1) (A) State requirement of a good measure of Central Tendency. **[05]**

(B) Obtain Mode for the following frequency distribution : **[05]**

Age (in years)	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of Workers	50	70	100	180	150	120	70

(C) Calculate Arithmetic Mean, Median and Mode for the following monthly salaries (in Rs.) of 10 employees in a firm : **[05]**

4500, 4750, 4650, 4850, 4800, 4750, 4600, 5000, 4550, 4675

(D) A box contains 5 green, 3 red and 2 yellow balls. Two balls are drawn at random from this box without replacement. Find probability that :

(a) both are green.

(b) one is red and one is yellow. **[05]**

Q.2) (A) Describe advantages of Sampling over Census. **[05]**

(B) Obtain Median for the following overtime work done by 100 employees of a company in a month : **[05]**

Overtime (in hours)	10-15	15-20	20-25	25-30	30-35	35-40
No. of Employees	11	20	35	20	8	6

(C) Obtain Standard Deviation for the following data : **[05]**

Distance (in kms)	40-45	45-50	50-55	55-60	60-65
No. of Mopeds	13	12	25	35	15

(D) Obtain expected value of a number of heads obtained when three fair coins are tossed simultaneously. **[05]**

Q.3) (A) Explain the terms Population and Sample with illustrations. **[05]**

(B) Draw histogram for the following frequency distribution : **[05]**

Weight (in kg.)	30-40	40-50	50-60	60-70	70-80	80-90
No. of Students	16	32	40	52	40	10

(C) The Arithmetic Mean of the following frequency distribution having 100 observations is 44.2. Find missing frequency : **[05]**

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	12	25	20	?	10	4

(D) From the following data, estimate yield when the rainfall is 29 inches : **[05]**

	Rainfall (in inches)	**Yield (per acre)**
Mean	27	40
Standard Deviation	3	6

Correlation Coefficient = 0.8.

Q.4) (A) What is Dispersion ? Explain Absolute and Relative Measures of Dispersion. **[05]**

(B) For a bivariate data, the two lines of regression are $2Y - X - 50 = 0$ and $3Y - 2X - 10 = 0$. Find means of X and Y. Also obtain correlation coefficient between X and Y. **[05]**

(C) Calculate Karl Pearson's Correlation Coefficient for the following data of ages of husbands and wives at the time of their marriage : **[10]**

Age of Husband	23	27	28	28	28	30	30	33	35	36
Age of Wife	18	20	22	27	21	29	27	29	28	29

Q.5) (A) Define the following terms : **[05]**

(a) Probability

(b) Conditional Probability

(c) Correlation

(B) Ten pieces of cloth selected at random contained the following number of defects :

3, 4, 4, 9, 0, 6, 0, 5, 3, 1

Construct a suitable control chart and state your conclusion. **[05]**

(C) The number of runs scored by two batsmen A and B in seven one-day matches are given below :

Batsman A	5	20	90	76	102	90	6
Batsman B	40	35	60	62	58	76	42

(a) Which batsman is better in average ? Why ?

(b) Which batsman is more stable ? Why ? **[10]**

Q.6) (A) Distinguish between Control Chart for Variables and Control Chart for Attributes. **[05]**

(B) A pair of fair dice is thrown. Find probability that sum of numbers appear on the uppermost surface is at most 5. **[05]**

(C) Below is the given means and ranges of sample of size 5 each taken from a certain production process at regular intervals :

Sample No.	1	2	3	4	5
Mean ($\overline{X}$)	14.2	13.9	15.5	12.1	14.1
Range (R)	2.0	2.5	2.8	2.5	3.0
Sample No.	6	7	8	9	10
Mean ($\overline{X}$)	13.2	12.9	13.5	13.1	12.8
Range (R)	1.9	2.1	3.9	3.1	2.1

Construct Control Chart of Mean and Range and comment on state of control.

(Given that n = 5, A_2 = 0.577, D_3 = 0, D_4 = 2.115) **[10]**

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

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B. C. A. (Semester - II) Examination - 2010

OFFICE AUTOMATION

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **6** is compulsory.*

*(2) Solve **any four** questions from the remaining.*

(3) Draw neat diagram wherever necessary.

Q.1) (A) Explain different features of Desktop Publishing. **[08]**

(B) What is Batch Processing and Online Processing ? Describe advantages and disadvantages. **[08]**

Q.2) (A) Explain Mathematical and Statistical Functions in Excel. **[08]**

(B) What is db ? Explain with example insert and update records in the table. **[08]**

Q.3) (A) What is Networking ? Describe different types of Networking. **[08]**

(B) What are the features of Windows Operating System ? Explain Desktop, Icon, Menu. **[08]**

Q.4) (A) Explain features of E-mail. **[08]**

(B) What is File Organisation ? Describe any two types in detail. **[08]**

Q.5) (A) Describe different types of Graphs in Excel. **[08]**

(B) Explain characteristics of Information. **[08]**

Q.6) Write short notes : **(Any Four)** **[16]**

(a) SQL

(b) Mail Merge

(c) Note Pad

(d) Protocols

(e) HUB

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-25

B. C. A. (Semester - II) Examination - 2010

BUSINESS ENVIRONMENT

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

Q.1) What do you mean by 'Business Environment' ? Discuss relationship between National Economy and Business Environment. **[15]**

OR

Q.1) What is Population Explosion ? Explain causes and effects of Population Explosion. **[15]**

Q.2) Define Monetary Policy. Explain tools of Monetary Policy. **[15]**

OR

Q.2) Discuss problems faced by the agricultural sector in India. **[15]**

Q.3) Explain in detail the functions of World Bank. **[15]**

OR

Q.3) Explain importance and types of Transports. **[15]**

Q.4) What is Globalisation ? Explain changing business scenario in India after introduction of Globalisation. **[15]**

OR

Q.4) Explain types and functions of Insurance. **[15]**

Q.5) Write notes : **(Any Four**) **[20]**

(a) Types of Trades

(b) Highlights of Second Generation Reforms

(c) Public Debt

(d) Objectives of Foreign Trade Policy

(e) Difference between GATT and WTO

(f) Types of Taxes

(g) Importance of Political Stability for Business

(h) Factors Affecting Industrial Location

Total No. of Questions : 5] [Total No. of Printed Pages : 5

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B. C. A. (Semester - III) Examination - 2010

NUMERICAL METHODS

(MATHEMATICS)

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Use of calculator is allowed.

Q.1) (A) Attempt **any one** of the following : **[06]**

(a) Find real root of the equation $x^4 + x^2 - 80 = 0$ by using Newton - Raphson Method near to 2.8.

(b) Prove that $\Delta\left[\frac{f(x)}{g(x)}\right] = \frac{g(x)\,\Delta f(x) - f(x)\,\Delta g(x)}{g(x+h).g(x)}$

(B) Attempt **any two** of the following : **[10]**

(a) If $y = 3x^4 - 12x^3 + 2x - 4$, then find $\frac{d^3y}{dx^3}$ at $x = 1$.

(b) Evaluate $\int_{-2}^{2}\left(3x^2 - 2x + 4\right) dx$.

(c) Find root of the equation $x^3 - 9x + 1 = 0$ between $x = 2$ and $x = 3$ correct to two decimal places.

Q.2) (A) Attempt **any one** of the following : **[06]**

(a) Obtain f(6) and f(7) by using the following table :

x	–1	0	1	2	3	4	5
f(x)	–13	–7	–1	11	35	77	143

(b) Prove (i) $E \equiv \perp + \Delta$

(ii) $E \nabla \equiv \nabla E \equiv \Delta$

(B) Attempt **any two** of the following : **[10]**

(a) Find form of function f(x) from the given data :

x	0	1	2	3	4
f(x)	3	6	11	18	27

(b) Find f(5) by Lagrange's Interpolation Formula, given that :

x	1	3	4	8	10
f(x)	8	15	19	32	40

(c) Represent function $f(x) = x^4 - 12x^3 + 24x^2 - 28x + 8$ in factorial notation.

Q.3) (A) Attempt **any one** of the following : **[06]**

(a) Use least square method to fit a straight line $y = a + bx$ to the following data :

x	1	3	4	6	8	9	11
y	1	2	4	4	5	7	8

(b) Derive normal equations to fit straight line $y = a + bx$ from the set of points (x_1, y_1), (x_2, y_2), ... (x_m, y_m).

(B) Attempt **any two** of the following : **[10]**

(a) Find $\frac{dy}{dx}$ at x = 3.0 from the given data :

x	3	3.2	3.4	3.6	3.8	4
y	-14.000	-10.032	-5.296	-0.256	6.672	14.000

(b) Evaluate $\int_0^1 x^2 \, dx$ by Simpson's $\frac{1}{3}$ rd rule. (Take h = 0.1)

(c) Find area bounded by curve f(x), x–axis, lines x = 0 and x = 4 by using the following table :

x	0	0.5	1	1.5	2	2.5	3	3.5	4
f(x)	0	1.4142	2	2.4494	2.8284	3.1622	3.4641	3.7416	4

Q.4) (A) Attempt **any one** of the following : **[06]**

(a) Use Picard's Method to solve $\frac{dy}{dx} = x + y$, subject to condition y(0) = 1. Find y(0.2).

(b) Using Euler's Method, solve $\frac{dy}{dx} = 1 + y^2$, given y(0) = 0 and h = 0.05 to obtain y(0.05) and y(0.1), y(0.15).

(B) Attempt **any two** of the following : **[10]**

(a) Solve the following L.P.P. graphically :

Maximize $Z = 48x + 40y$

Subject to, $2x + y \leq 90$

$x + 2y \leq 80$

$x + y \leq 50$

$x \geq 0, y \geq 0$

(b) Two kinds of foods A and B are being considered to form a weekly diet. The minimum weekly requirements of fats, carbohydrates and proteins are 18, 24 and 16 units respectively. One kg of food A has 4, 16 and 8 units respectively of these ingredients.

One kg of food B has 12, 4 and 5 units respectively. The price of food A is Rs. 4 per kg and food B is Rs. 3 per kg. Formulate this problem as L.P.P. to minimise cost and meet the requirements.

(c) Obtain initial basic feasible solution to the following transportation problem by North West Corner Rule Method :

		Warehouse				
		W_1	W_2	W_3	W_4	**Supply**
Plant	P_1	2	3	11	7	6
	P_2	1	0	6	1	1
	P_3	5	8	15	9	10
Demand		7	5	3	2	

Q.5) (A) Attempt **any one** of the following : **[06]**

(a) Use Runge - Kutta's Fourth Order Formula to find y(0.1), given that $\frac{dy}{dx} = x + y$ with $y(0) = 1$.

(b) Define solution, feasible solution and optimal solution of a L.P.P.

(B) Attempt **any two** of the following : **[10]**

(a) Four contractors applied for three contracts in a local municipal corporation. The amounts quoted by them are given in the following table. (figures in thousands)

Contract

		I	**II**	**III**
Contractors	**A**	17	16	20
	B	18	16	25
	C	20	16	22
	D	16	14	19

Determine assignment that minimises total cost.

(b) Write LP Form of the following transportation problem :

		Destinations				
		I	**II**	**III**	**IV**	**Supply**
Source	**1**	2	6	3	10	100
	2	4	3	1	9	200
	3	5	3	2	4	200
Demand		100	200	100	100	

(c) Evaluate $\int_{4}^{5.2} \log e^{x}\, dx$ by Simpson's $\frac{3}{8}$th rule.

(Take h = 0.2)

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

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B. C. A. (Semester - III) Examination - 2010

DATA STRUCTURE USING 'C'

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) All questions carry equal marks.

(3) Assume suitable data, if necessary.

Q.1) Attempt **any eight** of the following : **[8x2=16]**

(1) What are the Applications of Queue ?

(2) How to measure performance of an Algorithm ?

(3) What is Tree ? How it differs from the Link List ?

(4) What is Sorting ? State different types of Sorting Techniques.

(5) What is Hash Table ? What are the characteristics of Good Hash Function ?

(6) What is Priority Queue ?

(7) What is Self-referential Structure ?

(8) What is Polynomial ? How it differs from structure ?

(9) What is the use of typedef keyword ?

(10) What are the advantages of an Array over Linked List ?

Q.2) Attempt **any four** of the following : **[4x4=16]**

(a) Explain algorithm to convert infix expression to its equivalent postfix expression.

(b) Sort the following elements using merge sort. Show each step in detail :

5, 8, 89, 30, 42, 92, 64, 4, 21, 56

(c) Explain Depth First Search with an example.

(d) Write a C program to create node in circular linked list.

(e) Differentiate between Stack and Queue.

Q.3) Attempt **any four** of the following : **[4x4=16]**

(a) Evaluate the following postfix expression :

4, 5, 4, 2, , +, *, 2, 2, , 9, 3, 1, *, –

(b) Explain Breadth First Search with example.

(c) Write a 'C' program to remove first node of singly linked list and insert it at the end of a list.

(d) Explain in brief the functions of Dynamic Memory Allocation.

(e) Define AVL Tree ? Build an AVL Tree for the following data :

Sun, Mon, Tue, Wed, Thur

Q.4) Attempt **any four** of the following : **[4x4=16]**

(a) Sort the following elements by using quick sort :

48, 29, 8, 59, 72, 88

(b) Explain Kruskal's Algorithm for Minimum Spanning Tree.

(c) Write a 'C' program for implementation of circular queue.

(d) Convert the following infix expression into postfix expression :

A * (B + C D) – E/F * (G + D)

(e) Write a 'C' program to create a node in doubly linked list.

Q.5) Attempt **any four** of the following : **[4x4=16]**

(a) Construct Binary Search Tree for the following data and give inorder, preorder and postorder tree traversal :

20, 30, 10, 5, 16, 21, 29, 45, 0, 15, 6

(b) Write a 'C' program for evaluation of a given polynomial. (eg. $2x^3 + x + 3$)

(c) Explain Heap Tree with an example.

(d) Write a 'C' program to reverse given string using stack.

(e) Sort the following elements by using selection sort method :

10, 22, 65, 223, 87, 343, 98, 244

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

[3773]-303

B. C. A. (Semester - III) Examination - 2010

SOFTWARE ENGINEERING

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Black figures to the right indicate full marks.

(3) Neat diagram must be drawn wherever necessary.

Q.1) Attempt the following : **(Any Eight)** **[16]**

(a) Define Interface Concept of System with example.

(b) Justify s/w does not ware out.

(c) Define Open Ended and Close Ended Questionnaires.

(d) Explain Data Process.

(e) What is Black Box Testing ?

(f) What is Coupling ? State any two types of Couplings.

(g) Define Decision Tree and Decision Table.

(h) Explain E-R Model.

(i) What is Afferent Module ?

(j) Explain advantages of Prototyping Model.

Q.2) Answer the following : **(Any Four)** **[16]**

(a) Explain Testing Principles and Objectives.

(b) Explain Data Validation along with Validation Checks.

(c) Write a note on Feasibility Study.

(d) Define Module and explain types of Modules.

(e) Explain Waterfall Model in detail.

(f) Write steps for converting DFD to Structured Chart.

Q.3) (A) Design an output screen for Indian Railway Ticket format including passenger details (name, male / female, age, phno.), Source and Destination for traveling, total fare and class. **[08]**

(B) XYZ Company divides its customers into 2 categories for the purpose of determining delivery charges :

(a) Those whose sales region code is 50 and above and those with code of less than 50.

(b) If the code is less than 50 and the invoice amount is less than Rs. 5,000, the delivery charge to be added to the invoice amount is Rs. 150. But if the invoice value is for Rs. 5,000 or more the delivery charge is Rs.75.

(c) If the code is equal to or greater than 50 the corresponding delivery charges are Rs. 200 and Rs. 100 respectively.

Draw Decision Tree and Decision Table. **[08]**

Q.4) Short notes : **(Any Four)** **[16]**

(a) White Box Testing

(b) Design Guidelines (for input/output forms)

(c) Software Quality Factors

(d) Interview

(e) System Characteristics

(f) Maintenance of System

Q.5) Indian Bank provides fixed deposit schemes through which people can deposit money for a certain period of time. The bank pays interest for this period and returns money when FD period is over. Interest rate depends upon the period.

The depositor may choose to renew FD.

The depositor may get loan against deposits.

A maximum of 75% of the deposit amount is allowed as loan amount.

Analyse problem from the specifications given above :

(a) Identify all entities and data stores **[03]**

(b) Draw Context Level Diagram **[06]**

(c) Draw First Level DFD for System **[07]**

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

[3773]-304

B. C. A. (Semester - III) Examination - 2010

MANAGEMENT ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Use of calculator is allowed.

Q.1) How does a comparative statement help Finance Department to arrive at a meaningful comparison ? **[16]**

OR

Q.1) Explain scope and functions of Management Accounting. **[16]**

Q.2) What is Funds Flow Statement ? Discuss significance of Funds Flow Statement as a tool of Financial Statement. **[16]**

OR

Q.2) Following information is presented by the Costing Department to Management Accountant of the Company : **[16]**

(a) Contribution Rs. 10,000

(b) Fixed Cost Rs. 4,000

(c) P/V Ratio 1/3

The Management Accountant is asked to find out margin of safety, if P/V Ratio is brought down to $^{1}/_{2}$.

Q.3) From the following information you are required to estimate Net Working Capital : **[16]**

Elements of Cost	Cost per Unit Rs.
Raw Material	400
Direct Labour	150
Overheads	300
Total Cost	**850**

Additional Information :

(1) Selling Price Rs. 1,000 per unit.

(2) Output 52,000 units p.a.

(3) Raw Material in stock, average 2 weeks.

(4) Work-in-Progress, average 2 weeks.

(5) Finished Goods in stock, average 4 weeks.

(6) Credit allowed to debtors, average 8 weeks and from suppliers, average 4 weeks.

(7) Cash at Bank is expected to be Rs. 50,000.

Assume that production is sustained at an even price during all 52 weeks of the year. All sales are on credit basis. State other assumptions that you might have made while computing.

Q.4) The following are summarized Profit and Loss A/c. for the year ended 31st March, 2010 and Balance Sheet as on that date of XYZ Ltd.

Profit and Loss A/c. for the year ended on 31st March, 2010

Particulars	Rs.	Particulars	Rs.
To Opening Stock	10,000	By Sales	1,00,000
To Purchases	55,000	By Closing Stock	15,000
To Gross Profit	50,000		
Total	**1,15,000**	**Total**	**1,15,000**

Particulars	Rs.	Particulars	Rs.
To Selling and Dist. Exp.	12,000	By Gross Profit	50,000
To Admin. Exp.	15,000		
To Interest	3,000		
To Net Profit	20,000		
Total	**50,000**	**Total**	**50,000**

Balance Sheet as on 31st March, 2010

Liabilities	Rs.	Assets	Rs.
Equity Capital of Rs. 10	1,00,000	Plant and Machinery	30,000
P and L A/c.	20,000	Land and Building	50,000
Bills Payable	15,000	Furniture	20,000
Sundry Creditors	25,000	Inventories	15,000
		Bills Receivable	12,500
		Sundry Debtors	15,000
		Bank	17,500
Total	**1,60,000**	**Total**	**1,60,000**

Calcualte :

(a) Gross Profit Ratio

(b) Net Profit Ratio

(c) Operating Ratio

(d) Working Capital Turnover Ratio **[16]**

OR

Q.4) Explain in detail the components used for calculating Working Capital of the Company. **[16]**

Q.5) Write short notes : **(Any Two)** **[16]**

(a) Cash Budget

(b) Cost Accounting

(c) Cash Flow Statement

Total No. of Questions : 5] **[Total No. of Printed Pages : 5**

[3773]-305

B. C. A. (Semester - III) Examination - 2010

RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

Q.1) Attempt **all** : **[16]**

(a) Give any two differences between DBMS and RDBMS.

(b) What is Cursor ? Which are the various Attributes of Cursor ?

(c) Give proper syntax of Trigger.

(d) List States of Transaction.

(e) What is Serializability ?

(f) Define Lock. List different types of Locks.

(g) Define Growing Phase.

(h) Define Starvation.

Q.2) Attempt **any four** : **[16]**

(a) Explain any four objects of Oracle.

(b) What is Trigger ? Explain any two types of Triggers.

(c) What is Transaction ? Explain properties of Transaction.

(d) What is Deadlock ? How to prevent Deadlock ?

(e) Explain Log-based Recovery.

Q.3) Attempt **any four** : **[16]**

(a) Explain different data types in PL/SQL.

(b) Explain for and if loop used in PL/SQL with proper example.

(c) What is Schedule ? Give types of Schedules.

(d) Explain different types of Storages.

(e) Explain Immediate Database Modifications with example.

Q.4) Attempt **any four** : **[16]**

(a) Consider the following relational database :

Dept (deptno, deptname)

Emp (empno, empname, designation, salary, deptno)

Write a script using cursor to give raise in salary by 15% for all the employees earning less than 15,000 and 19% for all employees earning more than or equal to 15,000.

(b) Consider the following relational database

Item (itemno, itemname, qty)

Supplier (sno, sname, address, city, phno)

It-Su (itemno, sno, rate, discount)

Define a trigger before updation on discount field, if the difference in the old discount and new discount to be entered is 15%, raise an exception and display corresponding message.

(c) Consider the following relational database :

Company (c_no, c_name, c_addr, c_city, c_share_value)

Person (p_no, p_name, p_addr, p_city, p_phone_no)

CP (c_no, p_no, no_of_shares)

Write a function, which will take company name as parameter and will find names of persons who are shareholders of the company.

(d) Consider the following relational database :

Publisher (p_no, p_name, p_addr)

Book (book_no, book_name, price, p_no)

Write a script, which will accept book number entered by user and print details of book.

(e) Write a package, which consists of one procedure and one function. Pass a number to procedure and print whether a number is positive or negatives pass roll number of student to function and print percentage of that student. For this consider the following relation.

Student (roll_no, name, addr, total, per)

Q.5) Attempt **any four** : **[16]**

(a) Consider the following transaction. Give two non-serial schedules that are serializable :

T0	**T1**
Read (x)	Read (y)
x = x – 70	y = y + 10
Write (x)	Write (y)
Read (y)	Read (z)
y = y + 70	z = z – 5
Write (y)	Read (x)
	Write (z)
	x = x – 15
	Write (x)

(b) Consider the following transaction. Find out non-serial schedule which is serializable to serial schedule <T1, T2, T3> :

T1	**T2**	**T3**
Read (x)	Read (z)	Read (x)
Read (z)	z = z + 10	Read (y)
x = x + z	Read (y)	y = y – x
Write (x)	y = y + z	Write (y)
	Write (z)	
	Write (y)	

(c) Following is the list of events in an interleaved execution of set T1, T2, T3 and T4, assuming 2PL (two phase lock). Is there a deadlock ? If yes, which transactions are involved in deadlcok :

Time	Transaction	Code
t1	T1	Lock (A, X)
t2	T2	Lock (C, S)
t3	T3	Lock (A, S)
t4	T4	Lock (C, S)
t5	T1	Lock (B, X)
t6	T2	Lock (C, X)
t7	T3	Lock (D, X)
t8	T4	Lock (D, S)

(d) The following is the list of events in an interleaved execution of set of transaction T0, T1, T2 with two phase locking protocol :

Time	Transaction	Code
t1	T0	Lock (A, X)
t2	T1	Lock (B, S)
t3	T0	Lock (A, S)
t4	T1	Lock (C, X)
t5	T2	Lock (D, X)
t6	T0	Lock (D, S)
t7	T1	Lock (C, S)
t8	T2	Lock (B, S)

Construct a wait for graph according to above request. Is there deadlock at any instance ? Justify.

(e) Following are the log entries at the time of system crash ?

[start - transaction, T1]

[read - item T1, D]

[write - item, T1, D, 20]

[commit, T1]

[checkpoint]

[start - transaction, T2]

[read - item, T2, B]

[write - item, T2, B, 12]

[start - transaction, T3]

[write - item, T3, A, 20] ← System Crash.

If deferred update with checkpoint is used what will be the recovery procedure ?

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3773]-31

B. C. A. (Semester - III) Examination - 2010

DIGITAL COMPUTER DESIGN AND COMPUTER ORGANISATION

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Solve **any five** questions.*

(2) Figures to the right indicate full marks.

(3) Draw neat labelled diagrams wherever necessary.

(4) Assume suitable data wherever necessary.

Q.1) (A) Explain 4 to 1 Multiplexer with neat logic diagram and truth table. **[08]**

(B) Simplify boolean function in a sum of product form. $F(A, B, C, D) = \sum m(0, 1, 2, 4, 5, 8, 9, 10)$ using K-map. **[08]**

Q.2) (A) Draw logic diagram for Half Adder and Full Adder Circuit. [**04]**

(B) Show that $A + BC = (A + B)(A + C)$ using Boolean Algebra. **[04]**

(C) Draw block diagram for SISO and PISO Shift Registers. **[04]**

(D) How many address lines and output data lines are needed for the following : **[04]**

(a) $2k \times 16$

(b) $64k \times 8$

Q.3) (A) List atleast four applications of Counter. **[04]**

(B) Explain logical Micro-operations. **[04]**

(C) Register 'A' holds 8 bit binary number 11011011. Determine 'B' operand to change value in 'A' to :

(a) 11110001 ; ADD Micro-operation

(b) 10111011 ; SUB Micro-operation **[04]**

(D) Draw flowchart for Basic Computer Operations. **[04]**

Q.4) (A) Draw block diagram of Arithmetic Logic Shift Unit and explain its function. **[08]**

(B) Write notes on Register Transfer and BUS Transfer Operation. **[08]**

Q.5) Explain in detail the Design of Accumulator Logic. **[16]**

Q.6) Attempt **any four** :

(a) Draw logic diagram of clocked R-S Flip-Flop and give its truth table. **[04]**

(b) Explain 3 to 8 Line Decoder. **[04]**

(c) Draw logical diagram using 4 to 1 Multiplexer which performs logical operations AND, OR, XOR, NOT. **[04]**

(d) What is Computer Instruction ? **[04]**

(e) Write short note on Maskable and Non-maskable Interrupt. **[04]**

Total No. of Questions : 4] **[Total No. of Printed Pages : 3**

[3773]-32

B. C. A. (Semester - III) Examination - 2010

'C' PROGRAMMING

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instruction :

State assumptions if necessary.

Q.1) Draw a flowchart to check whether entered number is armstrong or not. **[10]**

Q.2) Attempt **any four** of the following : **[20]**

(a) Explain Concept of Command Line Arguments.

(b) Write a short note on operators used in C.

(c) Explain use of Break and Continue Statement.

(d) Explain Console I/O functions in C.

(e) Explain concept of Preprocessor Directives.

Q.3) Explain output of the following codes :
(Assume that header files are included.) **(Any Four)** **[20]**

(a)
```
main( )
{
   int a, b;
   a = – 3 – – 3;
   b = – 3 – – (–3);
   printf("a = %d, f = %d", a, b);
}
```

(b)
```
main( )
{
   int a = 0, b = 40, x;
   x = (a! = 10) && (b = 50);
   printf("x = %d", x);
}
```

(c)
```
main( )
{
   int a = 10, b = 10;
   printf("ans = %d", a > b ? a * a : b/b);
}
```

(d)
```
main( )
{
   int a = 3, b = 4
   b% = 3 + 4;
   a * = a + 5;
   printf("b = %d, a = %d", b, a);
}
```

(e)
```
main( )
{
   int i;
   for (i = 1; i < 5; i ++)
   {
      if (i * i > = 121)
      goto x:
      else
      printf("%d", i);
   }
   x :
   printf("\n I am here");
}
```

Q.4) Attempt **any five** of the following : **[30]**

(a) Write a menu driven program for the following :

(i) Factorial of a number.

(ii) Number is +ve or –ve.

(iii) Number is even or odd.

(iv) Number is prime or not.

(b) Write a program to generate Fibonacci Series upto n.

(c) Write a program using macro substitution to find largest of three numbers.

(d) Write a program to find addition of left diagonal and right diagonal elements of a matrix.

(e) Write a program to check whether entered no. is special or not.

(eg. 145 = 1! + 4! + 5!)

(f) Write a program using function to calculate $(x)^y$.

Total No. of Questions : 7] **[Total No. of Printed Pages : 2**

[3773]-33

B. C. A. (Semester - III) Examination - 2010

SYSTEM ANALYSIS AND DESIGN

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Black figures to the right indicate full marks.

Q.1) Define System. Explain various phases of SDLC. **[10]**

Q.2) Describe different types of Systems in detail. **[10]**

Q.3) Design a 'Railway Cancellation Form' to be filled by Railway Passenger for ticket cancellation. Also suggest required validations. **[10]**

OR

Q.3) Draw a layout for 'Employment Form' which is to be filled at Employment Office for job. **[10]**

Q.4) Following is a description of the procedure for dealing with delivery charges for goods bought from 'ABC Company'. For the purpose of determining delivery charges, customers are divided based on sales region code.

If the sales region code is less than 20 and invoice amount is less than 5,000, the delivery charges to be added to the invoice amount is Rs. 150; otherwise Rs. 75 delivery charges to be added to the invoice amount.

If the sales region code is greater than or equal to 20 and invoice amount is less than 5,000, the delivery charges to be added to the invoice amount is Rs. 200; but if invoice amount is greater than or equal to 5,000, Rs. 100 delivery charges to be added to the invoice amount.

Design Decision Tree and Decision Table for the above case. **[10]**

Q.5) 'Computer Laboratory' is the largest laboratory in the college. It has good collection of computers, softwares, cables etc. Management wants to know efficiency of its services to students. Prepare questionnaire to be distributed among the students for getting information about the laboratory services offered to the students. **[10]**

Q.6) Explain importance of documentation in detail. **[10]**

Q.7) Write short notes : **(Any Four)** **[20]**

(a) Role of System Analyst

(b) Decision Support System (DSS)

(c) Feasibility Study

(d) Elements of System

(e) Structured English

Total No. of Questions : 5] **[Total No. of Printed Pages : 6**

[3773]-34

B. C. A. (Semester - III) Examination - 2010

MANAGEMENT ACCOUNTING

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Q.1) Answer the following in brief : **(Any Five)** **[15]**

(a) What is Financial Accounting ? State its important objectives.

(b) Define the terms 'Capital' and 'Drawing'. Give suitable examples.

(c) What is a Petty Cash Book ? Explain its importance.

(d) Explain 'Dual Aspect' Concept of Accounting.

(e) State objectives and importance of Trading Account.

(f) What is 'Real Account' ? State its role with suitable examples.

(g) Distinguish between Cash Discount and Trade Discount.

Q.2) What do you mean by Cost Accounting ? Explain its objectives and limitations. **[15]**

OR

Q.2) Write detailed notes on **any three** of the following : **[15]**

(a) Methods of Time Keeping

(b) Apportionment of Overheads

(c) Store Ledger

(d) Types of Cost Centres

(e) Elements of Cost

Q.3) The following is the Trial Balance of Miss Heena, prepared as on 31st March, 2009 :

Particulars	**Debit**	**Credit**
Drawing and Capital	20,000	2,20,000
Machinery	1,80,000	–
Sundry Debtors and Creditors	60,000	75,000
Furniture	50,000	–
Stock as on 1st April, 2008	55,000	–
Delivery Van	55,000	–
Purchases and Sales	1,75,000	2,65,000
Salary	55,000	–
Wages	36,000	–
Outstanding Salary	–	9,500
Printing and Stationery	18,500	–
Insurance	5,500	–
Advertising	22,500	–
Loan from Miss Fina	–	1,90,000
General Expenses	15,800	–
Bad Debts	7,500	–
Reserve for Bad and Doubtful Detbs	–	15,400
Returns of Goods	16,500	7,800
Carriage Inward	14,500	–
Cash and Bank	25,900	30,000
	8,12,700	**8,12,700**

You are required to prepare 'Trading' and 'Profit and Loss Account' for the year ended on 31st March, 2009 and 'Balance Sheet' as on that date after giving effect to the following adjustments :

(1) Stock as on 31st March, 2009 was valued at Rs. 86,000.

(2) Wages Rs. 5,000 are outstanding for the year.

(3) Insurance includes Rs. 3,000 paid as mediclaim insurance premium of Miss Heena.

(4) Good of Rs. 20,000 are destroyed by fire and the insurance has admitted only 70% of the claim.

(5) Additional bad debts are 3,000. Reserve for doubtful debts is to be maintained @ 10%.

(6) All fixed assets are to be depreciated by 10%. **[20]**

Q.4) From the following information, prepare Stores Ledger on the basis of LIFO and Weighted Average Methods :

Balance as on 1st September, 2009 - 1,000 units @ Rs. 26.00 and 600 units @ Rs. 24.00

Receipts during the month of September, 2009

Date	**Units**	**Rate (Rs. per Unit)**
2nd	1,000	25.00
8th	1,200	27.00
15th	1,200	24.00
24th	1,400	29.00
	ISSUES	
5th	2,000	
11th	1,500	
18th	1,000	
29th	1,500	

[15]

OR

Q.4) XYZ Limited, Pune having three Production Cost Centres and one Service Cost Centre has provided you the following information :

Overheads	**Amount (Rs.)**
Rent and Rates	24,000
Electricity Charges	10,600
Insurance of Machinery	7,500
Depreciation on Machinery	25,000
Labour Welfare Expenses	18,500
Power and Fuel	15,600
Indirect Material	12,600
General Expenses	14,500
Supervision Charges	24,000

Additional Information :

Particulars	**A**	**B**	**C**	**D**
H.P. Ratio of the Machines	6	3	2	1
Book Value of Machinery	35,000	30,000	25,000	10,000
Area Occupied (Sq. Mtrs.)	100	120	150	30
Direct Labour Cost	40,000	30,000	20,000	10,000
Time Devoted for Supervision	30%	40%	20%	10%
Light Points of Equal Wattage	30	20	40	10

You are required to prepare statement showing Primary Distribution of Overheads. **[15]**

Q.5) The following information for the year ended on 31st March, 2009 is extracted from the cost records of PQR Limited, Pune :

Particulars	**Amount (Rs.)**
Purchases	3,40,000
Wages (Direct)	1,90,000
Factory Rent	35,000
Advertising	33,000
Printing and Stationery	19,500
Salary	34,500
General Expenses	25,600
Insurance	15,000
Commission on Sales	20,000
Book Value of Fixed Assets :	
Machinery	3,00,000
Office Equipments	1,00,000
Furniture	1,10,000
Delivery Van	70,000

Inventory	**Opening (Rs.)**	**Closing (Rs.)**
Raw Material	65,000	56,000
Work-in-progress	28,000	29,000
Finished Goods	34,000	43,000

Additional Information :

(1) Depreciation on furniture is apportioned in the Office and Sales Department in the ratio of 3 : 2.

(2) All fixed assets are to be depreciated by 10% except Delivery Van which is to be depreciated by 20%.

(3) 10% of the Salary is to be charged to the factory.

(4) During the year a machine was hired @ 1,500 per month for the period of six months for a Production Cost Centre.

You are required to prepare a Cost Sheet showing :

(a) Prime Cost

(b) Works Cost

(c) Cost of Production

(d) Cost of Goods Sold

(e) Total Cost, and

(f) Net Profit when goods are sold at 20% profit on sales. **[15]**

OR

Q.5) What do you mean by Absorption of Overheads ? Explain causes and remedies of Under-absorption of Overheads. **[15]**

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

[3773]-35

B. C. A. (Semester - III) Examination - 2010

DATABASE MANAGEMENT SYSTEM

(Old 2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

Q.1) Management of Sanjeevan Hospital proposes to computerise patient register and billing. Visiting doctors visit hospital as per the schedule declared. The doctors are paid on monthly basis, against the charge-slips submitted. A detailed register is maintained for patients admitted in the hospital. Room Charges and Laboratory Charges are recorded in the register, against each patient. At the time of discharge, patient is given bill showing the above details. As a system analyst :

(a) Draw Entity Relationship Diagram

(b) Design Relational Database **[15]**

OR

Q.1) What is Normalization ? Explain types of Normal Forms with example. **[15]**

Q.2) Consider the following entities and relationship and solve queries in SQL : **(Any One)** **[15]**

Salesman_master (sno, sname, addr1, city, state, salamt, target, totalsales, remarks)

Sales_order (ono, odate, client_no, delivery_type, bill_YM, sno, delivery_dt, order_status)

(a) Count total number of orders.

(b) Insert two records in both tables.

(c) Delete all orders, for whom bills are already generated.

(d) Display order information for client_no 'C0001' and 'C0002'.

(e) Update order_status as 'cancelled' for delivery date is '23_Nov_2009'.

OR

Q.2) STUDENT (seat_no, name, course)

EXAMFORM (form_no, course, seat_no, no_of_subjects, examFeesPaid)

(a) List coursewise number of students appearing for exam.

(b) Display course for which maximum students are appearing.

(c) Display total fees collected for each course.

(d) Display students form no., name, course and total fees paid.

(e) To delete all records for the 'MCA' course. **[15]**

Q.3) Explain the following commands/functions of SQL with example :

(Any Five) **[15]**

(a) create

(b) insert

(c) sum

(d) alter

(e) min

(f) update

Q.4) Attempt **any three** of the following : **[15]**

(a) Explain Data Abstraction.

(b) Explain NULL, In, Like, Between in SQL.

(c) Explain the difference between a Weak and a Strong Entity Set.

(d) Explain different users of DBMS.

Q.5) Write short notes : **(Any Four)** **[20]**

(a) Data Independence

(b) Mapping Cardinalities

(c) Nested Queries

(d) Hierarchical Data Model

(e) DCL Commands

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-401

B. C. A. (Semester - IV) Examination - 2010

NETWORKING

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Draw neat diagram wherever necessary.

Q.1) Solve **any three** of the following : **[3x5=15]**

(a) Explain Network Security Devices.

(b) Define Network. What are the types of Network ? Explain.

(c) Explain Twisted Pair Cable in detail.

(d) Compare Switch and Hub.

Q.2) Solve **any three** of the following : **[3x5=15]**

(a) Explain Token Ring with frame format.

(b) What is Internet Information Server (IIS) ? Explain with benefits.

(c) Write down classification of IP Addresses with example.

(d) Define Topology. Explain its various types.

Q.3) Solve **any three** of the following : **[3x5=15]**

(a) Explain OSI Reference Model.

(b) Write down steps to install NIC (Network Interface Card) and explain it.

(c) Explain Wireless LAN Architecture (IEEE 802.11).

(d) List various Goals of Networking.

Q.4) Solve **any three** of the following : **[3x5=15]**

(a) What is Bridge ? Explain its types.

(b) What is meant by Asynchronous Transmission ? Explain with diagram.

(c) Explain Microwave as a Wireless Transmission.

(d) Explain working of Web Server.

Q.5) Write notes : **(Any Four)** **[4x5=20]**

(a) Bluetooth

(b) Wireless Fidelity

(c) SAP

(d) Modes of Communication

(e) Gateways

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

[3773]-402

B. C. A. (Semester - IV) Examination - 2010

VISUAL BASIC

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Give illustrations wherever necessary.

Q.1) Explain the following property settings : **(Any Eight)** **[16]**

(a) Property used to enable TextBox Control.

(b) Property used to display all *.doc extension file in Filelistbox.

(c) Property used to resize picture to fit in the Image Control.

(d) Property to set tab order for the control of the form.

(e) Property used to display a read only combo box.

(f) Property used to set timer control.

(g) Property used to display text on a label control.

(h) Property used to set special password character of textbox control.

(i) Property used to count number of item in the listbox control.

(j) Property used to place a picture on a command button.

Q.2) Answer the following : (**Any Four)** **[16]**

(a) What is Event Driven Programming Language ?

(b) What do you mean by Variable ? Explain Scope of Variables.

(c) Explain any two built-in string functions with Syntax and examples.

(d) Discuss various events related with a form control.

(e) Compare ADO and ADODC Controls.

Q.3) Attempt the following : **(Any Four)** **[16]**

(a) Write a VB Program to find Fibonacci Series.

(b) Write a menu driven program in VB for :

(i) Addition

(ii) Subtraction

(iii) Multiplication

(iv) Division

(c) Write a VB program to display even numbers from an array.

(d) Write a VB program to calculate x^y without using built-in function.

(e) Write a VB program to display age in year, month and days.

Q.4) Attempt the following : **(Any Two)** **[16]**

(a) Write a program to accept details of teachers from user and store those details into the database (Don't use standard control). Teachers having fields Tno, Tname, Salary, Dateofjoining.

(b) Explain Message Box with syntax and example.

(c) Explain different control structures used in VB with examples.

Q.5) Short notes : **(Any Four)** **[16]**

(a) MDI

(b) Predefined Dialog Box

(c) Control Array

(d) Progress Bar

(e) Popup Menu

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

[3773]-403

B. C. A. (Semester - IV) Examination - 2010

INVENTORY MANAGEMENT (SAD)

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Q.1) Solve **any eight** of the following : **[16]**

(a) Explain Minimum Level.

(b) Advantages of ABC Techniques.

(c) What is Occupational Fraud ?

(d) Explain Checksum.

(e) Need of BPR

(f) Explain features of Turbo Analyst.

(g) Explain types of Thefts.

(h) What is CASE ?

(i) Explain benefits of Bar Code.

(j) Explain Re-Engineering.

Q.2) Solve **any four** of the following : **[16]**

(a) Explain characteristics which any good Inventory Control System has.

(b) What is Integrated CASE Environment ?

(c) Explain different methods of Reverse Engineering.

(d) Explain 'Need of Inventory Record Accuracy'.

(e) Define different phases of Business Continuity Plan.

Q.3) Attempt **any two** of the following : **[16]**

(a) What are CASE Tools ? Explain Architecture of CASE Tools.

(b) What is Business Process ? Explain BPR Model.

(c) How does Bar Code Work ? State uses of Bar Code.

Q.4) Solve **any four** of the following : **[16]**

(a) State legal duties of Storekeeper.

(b) State types of Software Maintenance.

(c) The Finance Department of Prashant Textile Corporation gathered the following information :

- The fixed cost per order is Rs. 20.
- The carrying cost per unit of inventory is Rs. 10.
- The no. of units required is 30,000 per year.
- The variable cost per unit ordered is Rs. 2.
- The purchase cost price per unit is Rs. 30.

(i) Determine Economic Order Quantity (EOQ).

(ii) Calculate total no. of orders in a year.

(d) XYZ Industries has an inventory of 5 items. Based on the price and usage, determine which items should be categorized as A, B, C :

Items	Price	Annual Usage
01	50.00	150
02	300.00	120
03	20.00	500
04	0.10	2000
05	0.04	5000

(e) Draw Flow Chart to check whether you need to file Income Tax return, using following data :

If you are under 65 years of age and income is greater than 2 lakhs, you have to pay Income Tax, else you won't.

Q.5) Write short notes : **(Any Four)** **[16]**

(a) Re-order Level

(b) EOQ

(c) Universal Product Code (UPC)

(d) Building Block for CASE Environment

(e) Stages of Reverse Engineering

Total No. of Questions : 6] **[Total No. of Printed Pages : 1**

[3773]-404

B. C. A. (Semester - IV) Examination - 2010

HUMAN RESOURCES MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **6** is compulsory.*

*(2) Answer **any four** questions from the remaining.*

(3) Figures to the right indicate full marks.

(4) Draw figures wherever necessary.

Q.1) Define HRM. Explain importance of HRM. **[15]**

Q.2) What is Recruitment ? Explain Sources of Recruitment in detail. **[15]**

Q.3) What is HRP ? Explain Process of HRP. **[15]**

Q.4) Define Performance Appraisal. State and explain Process of Performance Appraisal in detail. **[15]**

Q.5) Define Organisational Behaviour. Explain disciplines contributing to OB. **[15]**

Q.6) Write short notes : **(Any Four)** **[20]**

(a) Evaluation of Training Programme

(b) Promotion

(c) Selection

(d) Wages and Salary Administration

(e) Management Development Programme

(f) Factors Affecting Remuneration

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

[3773]-405

B. C. A. (Semester - IV) Examination - 2010

OBJECT ORIENTED PROGRAMMING USING C++

(New 2008 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Black figures to the right indicate full marks.

(3) Assume suitable data, if necessary.

Q.1) Attempt **any eight** of the following : **[8x2=16]**

(a) Define the following terms :

(i) Data Abstraction and Data Encapsulation

(ii) Dynamic Binding and Message Passing

(b) List any four benefits of Object Oriented Programming.

(c) What is a Reference Variable ? What is its major use ?

(d) How a member function of a class defined inside and outside a class ?

(e) What is the difference between cin and getline ? Give syntax of both.

(f) Define the following terms :

(i) Early Binding

(ii) Late Binding

(g) What is a Constructor ? Is it compulsory to use constructors in a class ?

(h) What is an Abstract Class ?

(i) What is Polymorphism ? List two types of Polymorphism.

(j) What is the difference between ios :: ate and ios :: app file mode parameters ?

Q.2) Attempt **any four** of the following : **[4x4=16]**

(a) Explain Memory Management Operator with suitable example.

(b) Explain Default Arguments with suitable example and write rules specified for Default Arguments.

(c) What are the applications of This Pointer ? Can we use this pointer in Friend Function ? Justify.

(d) Write a C^{++} program to copy contents of one file into the another file using Command Line Arguments.

(e) Write a C^{++} program for function overloading which will find maximum number between three integers and three float numbers.

Q.3) Attempt **any four** of the following : **[4x4=16]**

(a) Explain pure virtual function with suitable example.

(b) What are the different types of Constructors ? Explain with suitable example.

(c) Write a C^{++} program to illustrate use of setfill( ) and setiosflags( ) manipulators.

(d) Create a C^{++} class float that contains one float data member. Overload all the four arithmetic operators so that they operate on the objects of float.

(e) Trace output of the following program and explain it. Assume there is no syntax error :

```
#include <iostream.h>
int a = 100;
int main( )
{
    int a = 200;
    {
        int b = a;
        int a = 300;
```

```
        cout << "b =" << b <<"\n";
        cout << "a =" << a <<"\n";
        cout << ":: a = "<< :: a <<"\n";
    }
    cout <<"a =" << a <<"\n";
    cout <<":: a =" <<:: a <<"\n";
    return 0;
}
```

Q.4) Attempt **any four** of the following : **[4x4=16]**

(a) Explain four functions used for manipulation of file pointers.

(b) Explain multilevel inheritance with the help of suitable example.

(c) Explain with suitable example, function template with single parameter and function template with multiple parameters.

(d) Write a C^{++} program to exchange private values of two classes using friend function.

(e) Write a C^{++} program to accept a matrix of size $m \times n$ and display a matrix. Use dynanic memory allocation.

Q.5) Attempt **any four** of the following : **[4x4=16]**

(a) Explain exception handling in C^{++} with the help of suitable example.

(b) Explain memory allocation for objects with non-static data member and static data member.

(c) Consider a C^{++} base class Emp (Emp_no, Emp_name), derive two classes full_time_emp (Daily_rate, number_of_days, salary) and part_time_emp (Hourly_rate, number_of_hours, salary) from it. Accept and display information of n employees and calculate salary.

(d) Write a C^{++} program to overload operator >> and << to accept and display a point with x and y as two co-ordinates.

(e) Trace output of the following program and explain output. Assume there is no syntax error.

```
#include <iostream.h>
int count = 0;
class Demo
{
    public:
      Demo( )
      {
          count ++;
          cout <<"\n object" <<count<<"is created";
      }
      ~Demo( )
       {
          cout <<"\n object" <<count << "is destroyed";
          count – –;
       }
};
int main( )
{
    cout << "\n Enter Main";
    Demo A1, A2;
    {
      cout << "\n Enter Block1";
      Demo A3;
    }
    {
      cout <<"\n Enter Block 2";
      Demo A4;
    }
    cout <<"\n Re-Enter Main";
    return 0;
}
```

Total No. of Questions : 4] **[Total No. of Printed Pages : 3**

[3773]-41

B. C. A. (Semester - IV) Examination - 2010

OPERATING SYSTEMS

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Neat diagram must be drawn wherever necessary.

Q.1) Attempt **any ten** of the following : **[10x2=20]**

(1) What is Multitasking ?

(2) What is an Interrupt ?

(3) What is Scheduler ?

(4) What is Polling ?

(5) What is meant by Turnaround Time ?

(6) Define Process and list different states of the Process.

(7) List services provided by an Operating System.

(8) Define Physical Address.

(9) What is Page Fault ?

(10) Define Belady's Anomaly.

(11) "Cache Memory is faster than RAM". Justify true/false.

(12) Define Rollback.

Q.2) Attempt **any five** of the following : **[5x5=25]**

(a) Calculate Average Turnaround Time and Average Waiting Time for FCFS and Pre-emptive SJF.

Process	Burst Time	Arrival Time
P_1	5	1
P_2	3	0
P_3	2	2
P_4	4	3
P_5	8	2

(b) Explain Medium Term Scheduler.

(c) What is DMA ? Explain DMA block diagram.

(d) Describe actions taken by the Operating System when a Page Fault Occurs.

(e) Explain Processor Registers in detail.

(f) Explain Resource Management in Multiprogramming.

Q.3) Attempt **any one** of the following : **[1x10=10]**

(a) (i) What do you mean by Processor Share in case of Round - Robin Scheduling ?

(ii) Explain features of Unix O.S.

(b) (i) Explain in brief Instruction Cycle.

(ii) Compare Pre-emptive and Non-pre-emptive Scheduling.

Q.4) Attempt **any five** of the following : **[5x5=25]**

(a) What is Deadlock ? Explain deadlock prevention in detail.

(b) What is the difference between an Interrupt and a Trap ?

(c) What is Cache ? Explain Cache Principles.

(d) Explain Simple Batch System.

(e) Explain Process Control Block (PCB) in detail.

(f) Explain in detail M.V.T. Job Scheduling.

Total No. of Questions : 5] **[Total No. of Printed Pages : 3**

[3773]-42

B. C. A. (Semester - IV) Examination - 2010

VISUAL BASIC

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) State your assumptions clearly.

Q.1) Check whether the following section of code is correct. Give output and suitable explanation for the statement. : **(Any Four)** **[20]**

(a)
```
Dim i as integer
for i = 2 to 10
    print tab(15); i * i
Next i
```

(b)
```
Dim str as string
str = "programming in visual basic"
print strconv (left (Mid (str, 16, 12), 6), upper_case)
```

(c)
```
Dim k as integer
for k = 75 to 80
print Asc(k)
Next k
```

(d)
```
Dim x as Variant
Dim y as Byte
print TypeName(x)
print ValType(y)
print len(x)
```

(e)
```
Dim num, i, sum as integer
num = array (30, 40, 66, 79, 11, 35, 88, 70)
for i = 0 to 7
    sum = sum + num(i)
Next i
    IntAverage.Text = sum/8
```

Q.2) Explain the following property settings : (**Any Five)** **[15]**

(a) To display text in textbox at centre.

(b) Property to display color on command button.

(c) To add items on the combobox at design time.

(d) Property used to disable all the controls in frame.

(e) How to add a picture and clear form a picturebox ?

(f) How can one arrange list items alphabetically in a listbox ?

Q.3) Use two command buttons 'Armstrong' and 'Prime' and other necessary controls to accept required value. Write user define function to calculate 'Armstrong' and 'Prime No' checking. **[10]**

OR

Q.3) Take a listbox, textbox on a form. Add 5 date functions from the list box at runtime. When user selects any of the date function from the list box, the output should be displayed in the textbox. **[10]**

Q.4) Solve the following : **(Any Four)** **[20]**

(a) Write a note on Message Box with syntax and example.

(b) What are Control Arrays ? Explain with the help of a suitable example.

(c) Explain concept of Properties, Methods and Events with respective textbox control.

(d) Explain Three-tier Architecture.

(e) Distinguish between Combobox and Listbox.

Q.5) Write short notes : **(Any Three)** **[15]**

(a) Menu in Visual Basic

(b) MDI Forms

(c) Application Architecture

(d) Predefined Dialog Boxes

(e) Array in Visual Basic

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3773]-43

B. C. A. (Semester - IV) Examination - 2010

SOFTWARE ENGINEERING

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Black figures to the right indicate full marks.

(3) Neat diagrams must be drawn wherever necessary.

Q.1) Sharmik Vidyapeeth offers various courses like Radio/T.V. Repairing, Painting, Tailoring, Nursery Development, Computer Awareness etc. And also provides guidance for running small scale industries like chalk making, shoe making, toy making etc.

These courses are taught by many lecturers and instructors. These courses are scheduled based on some policy of the Vidyapeeth, when a particular number of students are registered for the courses then the course is started. If number of students is more than the batch capacity then more batches will be scheduled at the same time. Currently scheduling is done manually, but Vidyapeeth Management would like to automate scheduling. Each Lecturer/Instructor specifies on a paper the courses he/she will be conducting, his/her preferences for lecture timings. These courses and lecture timings should be within the ones specified by the Vidyapeeth, the information about the classrooms, approved courses and lecture timing is provided by the Vidyapeeth.While scheduling a course, it should be checked that the classroom capacity is sufficient for the course and a slot, for room is never alloted to more than one course. If no preference is specified for a course, the course should be scheduled in any manner that does not violet above constraints. The student enrolment forms are used

to find number of students registered for each course. When the course is scheduled, then the information is given to students by a letter.

(a) Identify Entities and Draw E-R Diagram. **[07]**

(b) Draw Context Level Diagram. **[06]**

(c) Draw First Level DFD. **[07]**

Q.2) Develop a Decision Table and Decision Tree which declare student examination result using the following rules : **[10]**

There are two subjects in the examination called main and ancillary. If a student gets 50% or more in the main subject and 40% or more in the ancillary, he passes. If he gets less than 50% in the main, he must get 50% or more in the ancillary to pass. However there is a group of students in the class who are granted special consideration. Their pass percentage is 40 in the main and 40 in the ancillary. If they get less than 40% in the ancillary, they are allowed to repeat that subject if they obtain 40% or more in the main subject.

Q.3) Draw a layout creating 'New E-mail ID Form' (Registration Form) to be filled by the customer who wants to open a new 'E-mail Account'. Also suggest required validation. **[10]**

Q.4) Define the term 'System'. Describe various Elements of the System. **[10]**

Q.5) Explain Waterfall Model in detail, with advantages and disadvantages. **[10]**

Q.6) Write short notes : **(Any Four)** **[20]**

(a) Principles of Good Code Design

(b) Structure Chart

(c) Difference between Physical and Logical DFDs.

(d) Fact Finding Technique

(e) Maintenance

(f) Open and Closed System

Total No. of Questions : 6] **[Total No. of Printed Pages : 1**

[3773]-44

B. C. A. (Semester - IV) Examination - 2010

HUMAN RESOURCE MANAGEMENT

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **6** is compulsory.*

*(2) Attempt **any four** from the remaining.*

(3) Figures to the right indicate full marks.

(4) Draw figures wherever required.

Q.1) Define the term 'Human Resource Management'. What are the features of H.R.M. ? Describe important stages in Evolution of H.R.M. **[15]**

Q.2) Explain organisational structure of H.R. Department. Evaluate role of H.R. Manager with reference to his duties and responsibilities. **[15]**

Q.3) What do you mean by Recruitment and Selection ? Describe various steps in Selection Procedure. **[15]**

Q.4) Define the term 'Training'. Describe advantages of Training to the business organisation and to the employees. **[15]**

Q.5) What do you mean by 'Grievance' ? What are the features of Grievance ? Describe various methods of understanding employee grievances. **[15]**

Q.6) Write short notes : **(Any Four)** **[20]**

(a) Distinction between Personnel Management and H.R. Management

(b) Process of H.R.M.

(c) Significance of H.R. Planning

(d) Induction Programme

(e) Executive Development

(f) Collective Bargaining

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-45

B. C. A. (Semester - IV) Examination - 2010

ORACLE

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Q.1) For the following tables, write SQL commands : **(Any Ten)** **[20]**

Table : Employee(Empno, Empname, Designation, Sal, Comm, Projectno)

Project(Projectno, Description, Status, Duration)

Employee Table : Empno is primary key and projectno is foreign key.

Project Table : Projectno is primary key.

(1) Display project details where duration is greater than 12 months.

(2) Display employee details whose name starts with 'B'.

(3) Display employee details whose designation is 'developer'.

(4) Display projects details whose status is 'Incomplete'.

(5) Display projectwise employee details.

(6) Raise salary of all employees who are working on project 'Inventory' by 500.

(7) Display employee details whose salary is between ten thousand to twenty thousand.

(8) Display employee details in ascending order of employee names.

(9) Update employee record for employees salary less than 2000 by 1000.

(10) Display employee name whose salary is minimum salary.

(11) Display employee name and salary as (salary + comm).

(12) Display employee details whose comm is null.

Q.2) Write short notes : **(Any Three)** **[15]**

(a) Constraints

(b) Views

(c) Components of SQL

(d) Rollback, Commit

Q.3) Explain the following : **(Any Three)** **[15]**

(a) Explain Date Functions with syntax and example.

(b) Explain Aggregate Functions.

(c) Implicit / Explicit Cursors

(d) Joins in Oracle

Q.4) (A) Explain Locks in Oracle. **[05]**

(B) Explain any five Report Writing Commands in SQL. **[05]**

Q.5) Attempt the following : **(Any Four)** **[20]**

(a) Using cursor print name, department name and salary of first 5 employees.

(b) Write PL/SQL block which accepts empno and display employee details.

(c) Write a trigger which will restrict deletion of employee record.

(d) Write a cursor to display departmentwise employee details.

(e) Write PL/SQL block to print armstrong numbers between 1 to 1000.

Total No. of Questions : 6] **[Total No. of Printed Pages : 1**

[3773]-51

B. C. A. (Semester - V) Examination - 2010

DATA COMMUNICATION AND NETWORKING

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **1** is compulsory.*

*(2) Attempt **any four** questions from Q. Nos. **2** to **6**.*

*(3) Questions **2** to **6** carry equal marks.*

(4) Draw neat diagrams wherever necessary.

Q.1) Explain OSI Reference Model in detail with the help of diagram. **[20]**

Q.2) Explain in detail IP Address Classification. **[15]**

Q.3) Explain ETHERNET and TOKEN RING frame format with the help of neat diagram. **[15]**

Q.4) Explain types and modes of Data Communication in detail. **[15]**

Q.5) Explain Coaxial, Twisted Pair and Fiber Optic Cable Media with reference to its structure, types and connectors used. **[15]**

Q.6) Write short notes : **[15]**

(a) Firewall

(b) Wireless LAN

(c) Network Operating System

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3773]-52

B. C. A. (Semester - V) Examination - 2010

WEB DESIGN AND INTERNET PROGRAMMING

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **1** is compulsory.*

*(2) Solve **any 4** from the remaining.*

(3) Figures to the right indicate full marks.

(4) State assumptions wherever necessary.

Q.1) Write short notes : **(Any Four)** **[20]**

(a) Web Hosting

(b) Anchor Tags in HTML

(c) Application and Session Object

(d) Dense Array

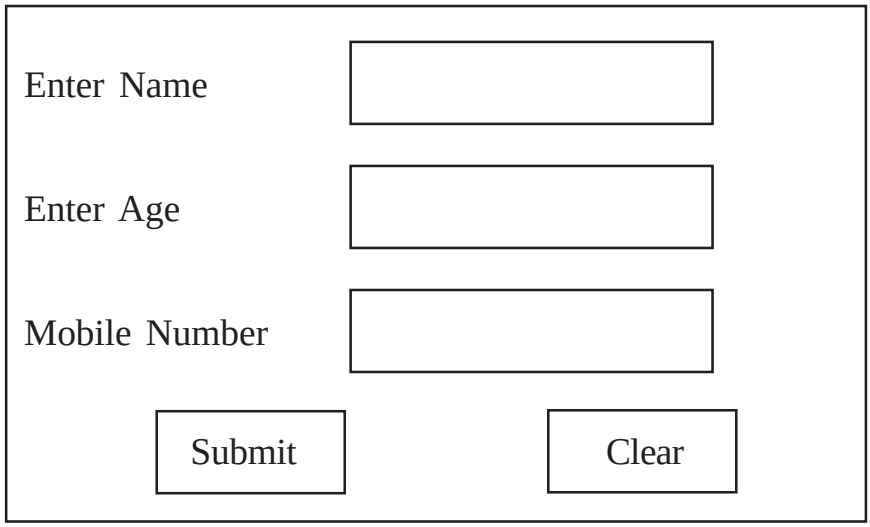
(e) Date Function of VBScript

Q.2) (A) Write HTML Code to Design Table : **[10]**

Year	Population Chart (1000)					
	Maharashtra		Karnataka		Kerala	
	Male	Female	Male	Female	Male	Female
2009	120	101	86	72	64	59
2008						

(B) Explain different types of lists in HTML. **[05]**

Q.3) (A) Write a Java Script Code to design Form : **[10]**



to accept name, age and mobile number and validate it as :

(i) Name should not be blank and should not accept digits.

(ii) Age should be between 18 to 25.

(iii) Mobile Number should accept only 10 digits number.

(B) Explain Document Object Model. **[05]**

Q.4) (A) Write VBScript Code that finds occurrence of alphabet 'a' in the string entered by a user in textbox. **[10]**

(B) Write VBScript Code to display current date and time. **[05]**

Q.5) Write ASP Code to accept employee code and display all its details in tabular format. **[15]**

Q.6) Write an ASP Code to name and e-mail address of customer and store it in database (handle validation). **[15]**

OR

Q.6) Write an ASP Code to delete a record from student table where rollno has to be accepted from html page, take suitable structure of student table. **[15]**

Total No. of Questions : 6] **[Total No. of Printed Pages : 2**

[3773]-53

B. C. A. (Semester - V) Examination - 2010

MATERIALS MANAGEMENT

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Question No. **6** is compulsory.*

*(2) Solve **any 3** questions from remaining five.*

(3) State assumptions wherever necessary.

Q.1) (A) What is Material Management ? Explain importance and objective of Material Management. **[10]**

(B) What do you mean by Forecasting in Material Management ? Explain in brief the Techniques of Forecasting used in Material Management. **[10]**

Q.2) (A) What is Perpectual Inventory System ? Describe its advantages. **[10]**

(B) Explain different Stock Levels in Inventory Control. **[10]**

Q.3) (A) Explain the Purchase Cycle in Materials Management. **[10]**

(B) What are the factors to be considered for the Selection of Material Handling Equipment ? **[10]**

Q.4) (A) What do you understand by Classification and Codification of Materials ? Explain any two Methods of Codification of Items. **[10]**

(B) What do you mean by Material Requirement Planning ? Explain in brief the steps involved in MRP. **[10]**

Q.5) (A) Explain in brief the Export Procedure of Materials. **[10]**

(B) Comment on "Computerized Environment would lead to better Material Management". **[10]**

Q.6) Write short notes : **(Any Four)** **[20]**

(a) BOM

(b) Basic Model of EOQ

(c) Standardisation

(d) ABC Analysis

(e) Functions of Purchase Department

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

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B. C. A. (Semester -V) Examination - 2010

C^{++} AND OOP

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

Q.1) Attempt **any four** of the following : **[20]**

(a) What is Object Oriented Programming ? Explain Encapsulation in breif with example.

(b) What is Constructor in C^{++} ? Explain some key features of Constructors.

(c) What is an Inline Function ? Explain situations where inline expansion may not work.

(d) Explain function overloading in brief with one small example.

(e) Define Class in C^{++} and explain with an example.

Q.2) Define the following : **(Any Five)** **[10]**

(a) Destructors

(b) Object

(c) Parameterised Constructors

(d) Virtual Base Classes

(e) Reference Operator

(f) Seekg( ) and Seekp( )

Q.3) Explain **any three** of the following : **[15]**

(a) Define Polymorphism in C^{++}. What is Compile Time Polymorphism ? Explain with one example.

(b) Explain Friend Function with one example.

(c) Explain different access specifiers in C^{++}.

(d) Define the term Inheritance. Explain role of Virtual Base Class in case of Hybrid Inheritance.

Q.4) Write C^{++} programs for the following : **(Any Five)** **[25]**

(a) Define a Class to represent a Bank Account. Include the following members :

Data Members :

(i) Name of Depositor

(ii) Account Number

(iii) Types of Account

(iv) Balance Amount in the Account

Member Functions :

(i) To assign initial values

(ii) To deposit an amount

(iii) To withdraw an amount after balance checking

(iv) To display name and balance

Write main program to test program for 5 objects using file handling.

(b) Create a class complex having data members float x and y. Define constructors (one default) and one to assign objects and add two objects by overloading operator. Display sum by using display member function. The display function should display real and imaginary part separately.

(c) Create a class time having data members hours and minutes. Define members functions to accept data members and use display function to display time in hours and minutes. Perform addition of two time objects by using friend function sum( ).

(d) Write a program to explain Copy Constructor.

(e) Write a C^{++} program using class to calculate square and cube of given number using inline function.

(f) Write a C^{++} program to find area of triangle, circle and rectangle using function overloading.

Q.5) Explain output of the following : **[10]**

(a)

```
#include <iostream.h>
int count = 0;
class alpha
{
   public :
      alpha( ) { count ++;
                 } cout << "\n No. of object created" << count;
   ~ alpha ( )
      { count << "\n No. of object destroyed" << count;
        cout – –;
      }
   };
   int main( )
      { cout <<"\n\n Enter MAIN\"n;
         alpha A1, A2, A3, A4;
      { cout << "\n\n Enter Block1\n";
        alpha A5;
      }
      { cout <<"\n\n Enter Block2\n";
        alpha A6;
      }
      cout <<"\n\n Re-Enter Main\n";
      return 0;
}
```

(b)
```
#include <iostream.h>
class room
{
    int len;
    int wid;
    public
        room( )
            { len = 0; wid = 0;}
        room (int val = 8)
            {
              len = wid = val;
            }
        void display( )
            { cout << len << "\n" << wid;}
        };
        void main( )
            {
                room obj1;
                obj1.display( );
            }
```

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

[3773]-61

B. C. A. (Semester - VI) Examination - 2010

ADVANCED NETWORKING

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Draw neat labelled diagrams wherever necessary.

Q.1) Answer the following **: (Any Three)** **[15]**

(a) What is the difference between Analog and Digital Bandwidth ?

(b) What is Multicast Routing ?

(c) What is ATM Signaling ?

(d) Explain different Routing Metrics used.

Q.2) Answer **any three** of the following : **[15]**

(a) What is Cryptography ? Explain Public Key and Secret Key Cryptography.

(b) What is Multimedia Information ? Explain different types.

(c) What are the applications of Computer Networking ?

(d) How is Analog Signal transmitted digitally ?

Q.3) Solve **any two** of the following : **[20]**

(a) Explain DES Algorithm. What are its drawbacks ?

(b) Explain structure of an IPV6 Packet.

(c) When is UDP used ? Explain its format.

Q.4) What are the drawbacks of SSL ? How TSL is more secure than SSL ? **[10]**

Q.5) Write short notes : (**Any Four**) **[20]**

(a) MPEG Video Coding Standard

(b) OSI Model

(c) Channel Speed and Bit Rate

(d) ATM Signaling

(e) Ip Forwarding

Total No. of Questions : 5] **[Total No. of Printed Pages : 2**

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B. C. A. (Semester - VI) Examination - 2010

MULTIMEDIA

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Q.1) Explain GIF, TIFF File Formats. **[10]**

Q.2) Solve **any three** : **[15]**

(a) What are the different properties of Hypermedia ?

(b) Explain MIDI Messages.

(c) What are the applications of Multimedia.

(d) What is Animation ? Explain types of Animations.

Q.3) Solve **any three** : **[15]**

(a) Explain RAID Technology.

(b) What is Sound ? Explain different properties of Sound.

(c) Explain any two output devices used in Multimedia Application.

(d) Differentiate between CD and DVD.

Q.4) Solve **any four :** **[20]**

(a) What is Graphics ? State Graphics Editing Tools.

(b) Distinguish between Analog and Digital Signals.

(c) What are the advantages and disadvantages of Optical Storage.

(d) Discuss Components of Multimedia System.

(e) What is Synthesizer ? Explain different properties of Synthesizer.

Q.5) Write short notes : (**Any Four**) **[20]**

(a) DAT

(b) Story Boarding

(c) 8-bit Colour Images

(d) History of Multimedia

(e) Technical Design Issues

Total No. of Questions : 7] **[Total No. of Printed Pages : 2**

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B. C. A. (Semester - VI) Examination - 2010

MARKETING MANAGEMENT

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

*(1) Attempt **any five** questions.*

(2) All questions carry equal marks.

Q.1) Define Marketing Management. Briefly discuss the Core Concepts of Marketing : **[16]**

(1) Needs

(2) Wants

(3) Satisfaction

Q.2) What is 'Marketing Research' ? What role does it play in Effective Marketing ? **[16]**

Q.3) What do you mean by 'Marketing Environment' ? Discuss the Internal and External Factors affecting 'Marketing Environment'. **[16]**

Q.4) What do you mean by 'Marketing Mix' ? Explain the Elements of 'Marketing Mix'. **[16]**

Q.5) State various factors influencing 'Consumer Behaviour' for Consumer Products. **[16]**

Q.6) What do you mean by 'Market Segmentation' ? Discuss the advantages of Market Segmentation. **[16]**

Q.7) Write short notes : (**Any Four**) **[16]**

(a) Rural Marketing

(b) Marketing Vs. Selling

(c) Marketing Planning

(d) Services Marketing

(e) Social Marketing

(f) Impact of Technology in 'Marketing'

Total No. of Questions : 5] **[Total No. of Printed Pages : 4**

[3773]-64

B. C. A. (Semester -VI) Examination - 2010

JAVA

(2005 Pattern)

Time : 3 Hours] **[Max. Marks : 80**

Instructions :

(1) All questions are compulsory.

(2) Figures to the right indicate full marks.

Q.1) Attempt **any four** of the following : **[4x4=16]**

(a) What is Garbage Collection ? How does it work ? Explain Finalize( ).

(b) Can constructor takes an object of its own class as a Parameter ? Explain with suitable example.

(c) What is major difference between Interface and a Class ?

(d) Write an applet that displays a simple message.

(e) Write a program in Java to convert string in to decimal, binary and hexadecimal.

Q.2) Attempt **any four** of the following : **[4x4=16]**

(a) Explain any two types of JDBC Drivers in detail.

(b) Why Java needs Compiler and Interpreter ?

(c) When an overridden method is called through a super class reference, which version of the method is executed ? Explain with example.

(d) Create Class Account (accno, name, balance).

Initialize values through parameterized constructor. If balance is in between 1000 and 3000, generate user define exception 'Balance within Range'. If name contains digit, raise exception 'Name not Valid'.

(e) Create an abstract class Person. Derive two classes Employee and Worker from it. Use proper method to accept and display details for the same. [Employee (eno, ename, address), Worker (name, working-hour)]

Q.3) Attempt **any four** of the following : **[4x4=16]**

(a) How to add class to a Package ? Explain with example.

(b) Explain any four listener interfaces available in Java.

(c) How applet differ from an application program ? Explain.

(d) Design a screen in Java which contains a text box. If the left mouse button is clicked, convert text in upper case and if the right button is clicked, convert it to lower case.

(e) Write a JDBC program that inserts the following details to Doctor table having structure d_no, d_name, salary, status.

Q.4) Attempt **any four** of the following : **[4x4=16]**

(a) What do you mean by early and late binding ? How it is implemented in Java ?

(b) Why Synchronization is used to implement threading in Java ?

(c) Explain Life Cycle of Applet.

(d) Write a program in Java to check whether the entered data is alphabet or digit. If it is alphabet, then print whether it is capital or small case. If digit is entered, throw user defined exception 'Digit Not Allowed'.

(e) Create a subclass of TwoDshape called circle. Include an area( ) method that computes area of the circle and a constructor that uses super to initialize TwoDshape members.

Q.5) (A) Write notes : **(Any Two)** **[4x2=08]**

(a) Final and Static

(b) JDBC Classes and Interfaces

(c) Arrays in Java

(B) Trance output (Assume there is no syntax error in given code) : **[08]**

(a)

```
Class Usestdemo
{
    static int x = 3;
    static int y;
    static void month (int z)
    {
        System.out.print\n ("x = " + x);
        System.out.print\n ("y = " + y);
    }
    static
    {
        System.out.print\n ("S Block initialized");
        y = x * 4;
    }
    Public static void main (string args[ ])
    {
        month (42);
    }
}
```

(b) Class Tdemo

```
{
    static void Tone( ) throws IllegalAccessException
    {
        System.out.print\n (“Inside Tone”);
        throw new IllegalAccessException (“demo”);
    }
    Public static void main (string args[ ])
    {
        try
        {
           Tone( );
        }
        catch (IllegalAccessException e)
           {
                System.out.print\n (“cought” +e);
           }
        }
}
```